THE

Journal of the American Medical Association.

EDITED FOR THE ASSOCIATION BY N. S. DAVIS.

PUBLISHED WEEKLY.

VOL. II. CHICAGO, APRIL 5, 1884. NO. 14.

ORIGINAL ARTICLES.

RESULTS OF AN EXAMINATION OF THE MARKET MILK OF CHICAGO, AND OF THE MILK OF COWS FED ON DISTILLERY REFUSE.

BY CHARLES S. BACON, M.D., SPRING PRAIRIE, WIS.

The following tables contain the results of a number of analyses made during the summer of 1883, at the laboratory of the Chicago Medical College, at the suggestion and under the supervision of Prof. Long. The writer is indebted to Dr. Oscar DeWolf, President of the city Board of Health, for procuriug forty-two samples of market milk through the sanitary police; also for aid in obtaining the samples from the distillery-fed cows. The rest of the samples were obtained by the college janitor, or by the writer, from milk wagons and depots. A few were secured from hospitals or from private houses. The specimens obtained by the police are numbered; the source of the rest is indicated in the table. On account of the care taken in getting the samples, it is believed that they fairly represent the milk sold in the city.

For practical purposes the detection of the ordinary sophistication, which consists in removal of cream and dilution with water, necessitates only the determination of the specific gravity and the percentage of solids and ash. Watering milk lowers its specific gravity, while skimming it increases the density; but a judicious combination of both processes will make the density normal, and hence the test by the lactometer alone is valueless. The determination of the solids, however, combined with the ascertainment of the ash, in order to eliminate any admixture of foreign coloring matter, is acknowledged to be sufficiently exact for ordinary purposes. It was not thought worth while to make use of the unsatisfactory creamometer.

In the more complete analysis of a part of the samples, the separation of the sugar, the nitrogenous matter and the fat was made by Ritthausen's method, 10 c.c. of milk were weighed and diluted to 100 c.c. The nitrogenous matter and the fat were precipitated by 5 c.c. of a solution of copper sulphate of such strength that 1 c.c. contained .020 grams. of copper oxide. This was rendered nearly neutral by a solution of potassium hydrate of such strength that 1 c.c. neutralized 2 c.c. of the copper solution. Now, the precipitate, consisting of copper, casein and entangled fat, is allowed to settle, and the supernatant sugar solution filtered, and the precipitate washed in a mercurial pump. The sugar solution is diluted to 250 c.c., and the amount of sugar determined by Fehling's solution made so that 10 c.c. is equal to .067 grams. of sugar. The precipitate is carefully dried in an air bath at a temperature below 110° C., and then weighed in an air-tight tube. It is then placed in an extracting apparatus, and the fat removed with ether. The process requires two or three hours. Then again dry the copper casein in the air bath and weigh it in the tube. The difference between this weight and that of the precipitate before the extraction of the fat gives the weight of the latter. This result is controlled by evaporating the ethereal extract, drying and weighing the residual fat. The nitrogenous matter is determined by burning the copper precipitate and subtracting the weight of its ash from the weight of the dried precipitate.

By adding the amounts of sugar, nitrogenous matter, and fat obtained in the manner just described to the ash obtained by burning the solids, it was found that the sum did not always correspond to the solids obtained by evaporating the milk. In order to ascertain whether the discrepancy was due to the quantity of the copper sulphate solution used in precipitating the casein and fat, a number of experiments were made. It was first found that 2 c.c., or more of the copper sulphate solution added to 100 c.c. of diluted milk, would give a clear supernatant liquid, while less than 2 c.c. would leave the supernatant liquid more or less turbid. As it appeared that the sum of the constituents was generally too small when a small amount of copper sulphate was added, a few samples were examined using first a small and then a larger quantity of copper sulphate. The following table shows the result:

		Ash.	Sugar.	Fat.	Nitrog. Mat.	Solids by Addition.	Solids by Evap't'n.
1.	2.5 c.c. copper solution	.70	4.31	2.04	3.17	10.22	11.39
	5 c.c. " "	.70	4.29	2.01	3.99	10.99	11.39
2.	2.5 c.c. copper solution	.64	4.34	1.85	2.83	9.66	10.18
	5 c.c. " "	.64	3.83	1.80	3.13	9.40	10.18
3.	2.5 c.c. copper solution	.72	4.49	4.74	3.45	13.40	14.13
	5 c.c. " "	.72	4.71	4.73	3.83	13.99	14.13
4.	5 c.c. copper solution	.82	4.69	5.33	4.07	14.91	14.83
	6.5 c.c. " "	.82	4.59	5.42	4.07	14.90	14.83

It is seen that the nitrogenous matter is considerably increased by using 5 c.c. of the copper sulphate solution instead of 2.5 c.c. It is not changed by increasing the amount above 5 c.c. The fat does not seem to be affected by the amount of the copper so-

lution. The sugar determination, in the last part of the second case, was undoubtedly inexact. It is not probable that the amount of copper affects the sugar determination if the solution was neutralized by the alkali. These observations, together with inferences from the table given below are, perhaps, sufficient to suggest the statement that 2 c.c. of the copper sulphate solution is required to precipitate all the fat, and leave a clear supernatant liquid, while a larger amount does not affect the quantity of fat; about 5 c.c. of the copper solution is required to precipitate all the nitrogenous matter.

Less than 5 c.c. of the copper sulphate solution, in many of the analyses, was used, and hence it is probable that the amount of nitrogenous matter can be determined more accurately by subtracting the sum of the fat, sugar and ash from the total solids. The results of the analyses will now be given, placing first the samples obtained by the sanitary police.

Sample.	Sp. gr.	Ash.	Sugar.	Fat.	Nitrog. mat.	Solids by addi'n.	Solids by evaporation.
Third Ward—							
1	1 029	.66	.....	.....	.....	.....	11.80
2	1.032	.75	...	.....	.....	.....	11 79
3	1.030	.76	.....	.....	.....	.....	11.91
4	1.032	.....	.....	.....	.....	.....	.....
5	1.033	.72	.....	.....	.....	.....	13.14
6	1.0325	.79	.....	.....	.....	.....	12.96
7	1.032	.77	.....	.....	.....	.....	12.83
8	1.034	.65	4.45	2.83	3.28	.....	11.21
9	1.0335	.74	.....	.....	.....	.....	13.06
10	1.0315	.72	.....	.....	.....	.....	12.66
11	1.0315	.66	3.81(?)	2.39	4.58(?)	.....	11.44
12	1.032	.69	.....	.....	.....	.....	13.25
Fourth Ward—							
13	1.036	.68	.....	.....	.....	.....	11.87
14	1.033	.71	.....	.....	.....	.....	12 01
15	1.034	.71	5.19(?)	5.59	3.54(?)	15.43	15.03
16	1.037	.75	5.30(?)	3.02	3.84	12.91	12.72
17	1.033	.69	5.09	3.91	3.61	.....	13.30
18	1.0325	.72	.....	.....	.....	.....	12.37
Fifth Ward—							
19	1.030	.67	.....	.....	.....	.....	10.53
20	1.034	.69	.....	.....	.....	.....	12.48
21	1.0305	.63	4.34	3.51	3.14(?)	11.62	12.17
22	1.030	.67	.....	.....	.....	.....	11.44
23	1.024	.57	3.79	6.38	2.52(?)	13.06	13.77
24	1.0285	.62	.....	.....	.....	.....	11.28
25	1.031	.69	.....	.....	.....	.....	13.02
26	1.0305	.67	.....	.....	.....	.....	11.52
Sixth Ward—							
27 (2.5 cc. cu. sol.)	1.029	.64	4.34	1.85	2.83(?)	9.66	10.18
" (5 cc. cu. sol.)	1.029	.64	3.83(?)	1.80	3.13	9.40	10.18
28	1.035	.68	.....	.....	.....	.....	12.77
29	1.0325	.66	.....	.....	.....	.....	11.26
30	1.037	.80	.....	.....	.....	.....	11.47
31	1.032	.70	.....	.....	.....	.....	11.56
32	1.030	.72	.....	.....	.....	.....	11.09
33	1.028	68	.....	.....	.....	.....	11.06
34	1.028	.58	.....	.....	.....	.....	11.17
Fourteenth Ward—							
35	1.0325	.75	.....	2.82	.....	.....	11.81 11.75
Fourteenth Ward—							
36	1.030	.68	.....	.....	.....	.....	11.90
37	1.032	.74	.....	.....	.....	.....	12.22
38	1.030	.60	.....	.....	.....	.....	11.06
39	1.0325	.70	.....	.....	.....	.....	12.41
40	1.0255	.66	.....	.....	.....	.....	10.85
41	1.035	.74	.....	.....	.....	.....	10.94
42	1.0325	.....	.....	.....	.....	.....	.....
Conrad Werner, 2457 Cottage Grove Avenue, Grocer	1.032	.69	.....	.....	.....	.....	11.44
J. W. Nichols, 2501 Cottage Grove Avenue, Grocer	1.031	.....	.....	.....	.....	.....	12.12
2401 Indiana Avenue, Grocer	1.034	.68	.....	.....	.....	.....	12.34
2615 South Park Avenue, Grocer	1.034	.71	.....	.....	.....	.....	10.45
Bakery, Cottage Grove Avenue, bet. 25th and 26th Streets	1.0225	49	3.15	1.53	2.12(?)	7.29	7.73
Furnished by private family. Manten's Dairy. P. Demarais.	1.030	.63	4.79	2.89	2.99	11.30	11.17
Furnished by private family	1.034	.69	.....	.....	.....	.....	11.99
Furnished by private family. Sinnett and Leonard, 2300 Wabash Avenue	1.032	.74	4.28	3.24	4.32	.....	12.58
Furnished by boarding house. Nevens Bros.	1.037	.77	4.66	1.73	3.67	.....	10.78
Furnished by restaurant	1.034	.64	.....	.....	.....	.....	11.04
Mercy Hospital (Coyle's Depot	1.035	.64	.....	.....	.....	.....	11.40
St. Luke's Hospital (2.5 c.c. cu. sol	.....	.70	4.31	2.04	3.17	10.22	11.39
St. Luke's Hospital (5 c. c. cu. sol	.....	.70	4.29	2.01	3.99	10.99	11.39
Dring & Curtis, 3910 Cottage Grove Avenue	1.037	.67	4.89	2.41	3.84	.....	11.81
Coyle's Depot, 26th St.	1.031	.66	.....	.....	.....	.....	11.72
McAdams' Depot, 26th Street	1.0305	.70	.....	.....	.....	.....	11.82
McAdams' Depot, 26th St. (another sample)	1.034	.66	.....	.....	.....	.....	10.95
Depot 39th and Dearborn	1.034	.68	.....	.....	.....	.....	12.11
Elgin Dairy, No. 3, Clinton Bros., 2117 Dearborn	1.035	.59	.....	.....	.....	.....	11.86
First can	1.031	.62	.....	.....	.....	....	13.09
First can (2.5 c.c. cu. sol. another sample.)	1.0305	.72	4.49	474	3.45(?)	13.40	14.13
First can (another sample, 5 c.c. cu. sol	1.0305	.72	4.71	4.73	3.83	13.99	14.13
Second can	1.033	.62	4.90	3.38	2.83(?)	11.73	11.96

The reaction was observed in about half of the samples, and was found acid in every case. The microscope was used in an examination of about a quarter of the samples. In many cases the number of large and medium-sized milk globules was found to be abnormally small. Colastrum corpuscles were seen in one sample, and small granular masses, probably of fungous nature, in another. The significance of these cannot be discussed. No other foreign substances were revealed by the microscope, and the presence of mineral coloring matter is rendered improbable by the normal ash. There remains, then, for discussion only the question of sophistication by means of skimming and watering.

At the outset a standard of normal mixed milk must be adopted. It is, perhaps, sufficient for the purposes of this article to accept 12.5 per cent. as the minimum amount of solids in normal milk. Without doubt healthy cows may sometimes give good milk which contains a less amount of solids, but these cases are so rare that the mixed milk from five or six cows would always contain the amount of solids indicated.

A study of the table shows that of the fifty-eight samples only thirteen, or 23 per cent., are unsophisticated. The average percentage of solids is 11.83. If the value of the milk in any given case is equal to the ratio between the solids and the standard taken, the value of the specimens examined would be about 95.5 per cent. of normal milk. But this number evidently places the value too high, since the average of solids is compared with the minimum of unsophisticated milk. By the table below it will be seen that the average amount of solids in the milk of swill-fed cows is 13.22 per cent. Comparing the market milk with this, its value is found to be 89.5 per cent.

This number, however, does not represent the real

value. If dilution were the only sophistication, it would be sufficiently near to the correct result. But in very few samples is watering the only fraud. If a specimen showed a very low specific gravity with a fair amount of solids, it might represent such a case. With the possible exception of number forty, these conditions are not filled. It is evident that from almost all the samples fat has been subtracted, and this leads to a consideration of the relative food value of the different constituents.

As a rough approximation, the potential energy of fat may be considered two times as great as that of sugar, and also two times as great as the available energy of casein. The quantity of fat thus becomes an important datum. Unfortunately, it was obtained in only 17 cases, and one of these, No. 23. must be omitted for reasons given below. The average percentage of fat in the sixteen samples is 2.73, In the twelve samples of swill milk, the percentage of fat is 3.96. Hence the market milk contains only 70 per cent. as much fat as the swill milk. In the swill milk, the fat is equal to about 30 per cent. of the solids. Calling its food value twice as great as that of the other constituents, it is worth six-thirteenths, or 46 per cent. of the milk. If, now, 30 per cent of the fat has been subtracted, about 14 per cent. of the food is removed.

Still further, it must be remembered that deviation from the normal proportion of food elements, which is assumed to exist in normal milk, causes a loss by requiring an excessive and uneconomical amount of certain ingredients to replace those which are deficient. This is probably an important consideration, but its significance cannot be expressed in figures.

These estimates will, perhaps, justify the conclusion that the market milk, when considered in respect to its nutritive value as determined by its potential energy, is not worth more than 85 per cent. as much as milk of swill-fed cows.

Attention has been called to sample No. 23. It might be supposed that the specimen was obtained from the top of the can, and therefore had an unusually large amount of cream. But if cream is a solution of sugar, casein and salts holding suspended the fat, the proportion of the substances in solution should be the same as in milk. The small amount of sugar and ash in this case leads one to infer that the milk was first diluted and cream then added. This was, possibly, a special preparation for an approaching policeman.

The last three samples, noted on page 12, were from cows grass-fed in pastures and yards. Granular masses were found in the second and third samples, and colastrum corpuscles in the third. It was chiefly intended to compare these results with those obtained by examining the milk of distillery cows.

The latter analyses are given in the following table. A few items in the history of each cow are included. The first nine cows were kept in one stable, the next three in another, and the last in a third. It may be worth while to say a word concerning the management of the dairies. The cows are bought in the country, or from drovers, or at the stock yards. Each cow has a young calf with her, which, the seller claims, was dropped by her a few weeks before. Sometimes, however, the cow refuses to own her calf, and the owner said that numbers three and nine had undoubtedly given milk for a long time before he bought them, although their calves were only a few days old. The prices paid range from thirty to sixty-five dollars. The cows, generally poor when bought, are fattened on the rich distillery food, and, after giving milk for four to ten months, they are sold for beef. From the time they are bought, till they are sold, the cows are kept tied or stanchioned in somewhat crowded stables. The number in a stable varies from five or six to three or four hundred. When many are together, one row faces another for convenience in feeding. Distillery refuse, with a little hay, constitutes their food. The floor is cleaned, and the temperature in summer moderated by flooding the floor with water. The stables are quite open and ventilation takes care of itself. Milking is done wice a day.

No	Age.	Condition.	How long the cow has given milk.	Am't of milk per day.	Reaction.		Spec. grav.	Ash.	S'gar.	Fat.	Nitrog. matter.	Solids by ad.	Solids by evap
1.....	7 years	Pretty good	2 months	10 l.	Amphoterid(?)	acid(?)	1.028	.78	.....	.....	.....	.....	11.95
2.....	9 years	Good	18 months	8 l.	Alkaline		1.030	.68	4.24	4.64(?)	3.79	13.35	13.17
3.....	5 years	Poor	Farrow	4 l.	Amphoteric(?)	acid(?)	1.0285	.90	4.33	4.50	3.74	13.47	13.74
4.....	13 years	Poor	8 months	5 l.	Acid		1.030	.70	4.64	4.38	3.73	13.45	14.02
5.....	5 years	Good	1½ months	5 l.	Acid		1.0325	.70	4.81	3.38	3.52	12.41	12.47
6.....	9 years	Good	9 months	5 l.	Acid		1.033	.68	4.86	5.09	4.19	14.82	15.04
7.....	5 years	Good	6 months	11 l.	Amphoteric(?)	acid(?)	.....	.70	4.96	5 39	4.04	15 09	15.12
8.....	11 years	Good	5 months	13 l.	Amphoteric		1.033	.70	4.62	2.94	3.74	12.00	12.19
9.....	13 years	Poor	Farrow	4 l.	Neutral		1.027	.70	3.99	2.60	3.09(?)	10.38	10.71
10.....	5 years	.....	.....	.....	Acid		1.030	.72	4.51	4.04	3.42	12.69	12.89
11.....	6 years	.....	.....	.....	Amphoteric(?)		1.030	.84	.....	.....	....	.....	11.77
									(Cu. sol. 5. c. c.)				
12.....	.....	.....	.....	.....	Acid		1.032	.82	4.69	5.33	4.07	14.91	14.83
									(Cu. sol. 6.5 c. c.)				
12.....	.....	.....	.....	.....	Acid		1.032	.82	4.59	5.42	4.07	14.90	14.83
13.....	.....	.....	.....	.....	.....		.....	.82	.....	.....	.....	.....	13.93

It needs no discussion to prove that the hygienic conditions, especially in the large stables, are bad. The lack of exercise, the want of ventilation, the presence of large quantities of organic matter, are conditions unfavorable to kine as to human beings. On the other hand, it must be said that the cows generally thrive under this treatment. They look fairly well and grow fat. The comparison of their milk with market milk has already been made. It will be seen that it is quite as good as the samples of milk from pasture cows.

Perhaps a word should be said concerning the method of getting the samples. Each cow was milked in presence of the writer, the milk well stirred and an average sample taken. The reaction was observed in the fresh milk. In addition to the samples given, the reaction of twenty-two more specimens was determined. Combining these with the twelve given cases, the results are as follows: acid, sixteen; alkaline, five; neutral, one; amphoteric, one; doubtful, *i. e.*, acid or neutral or amphoteric, eleven. Investigations, by different observers, have shown such great variations in the reaction of normal milk that no deductions can be made from the above results.

In conclusion, it may be said that neither the microscope, the litmus paper, nor the analyses show a bad condition of the milk. Sample number nine is poor, but that might be expected from an old, poor, and farrow cow, even if she had better surroundings. The proposition may then be made that harmful properties, if any exist, do not depend on a change in the main constituents of the milk, but in elements difficult to detect.

SOME OBSERVATIONS ON THE HYDROBROMATE OF HOMATROPINE.

BY T. E. MURRELL, M.D., LITTLE ROCK, ARK.

[Read before the State Medical Society of Arkansas at the eighth annual session, Little Rock, May 30 and 31, 1883.]

Homatropine was discovered in 1879 or 1880, about which there seems to be some doubt, since both Germany and England claim the discoverer.

Merck, of Darmstadt, first made the crystallized hydrobromate, the preparation now altogether used.

According to the last edition of the U. S. Dispensatory, the alkaloid is prepared from tropine, a substance obtained from belladonna, in combination with amygdalic acid and diluted hydrochloric acid.

Homatropine is quite similar to atropine, both chemically and physiologically. It is not so poisonous, and can be administered in far larger doses, thus avoiding those disagreeable symptoms so common to the use of atropine in the eyes, particularly in children. The most important differences between these two articles is in their relative action and duration on the pupil and accommodation.

In 1879, shortly after its discovery, Dr. Hermann Schäfer conducted a series of experiments with homatropine on the rabbit and on man, in comparison with atropine and duboisine. The following table contains a summing up of the average results. The strength of the solution used was ½ of 1 per cent. of each article.

	Atropine.	Duboisine.	Homatropine.
Beginning of mydriasis	14 min	8 min	9 min
Beginning of failure of acc.....	23 min	10 min	9 min
Pupil ceased to respond to light	25 to 30 min	15 min	15 to 20 min
Height of mydriasis reached	36 min	19 min	30 to 40 min
Total paralysis of acc. reached...	2¼ to 2½ hrs	1 hr. min	1½ to 2 hrs
Duration of mydriasis	4½ days	4 days	24 hrs
Duration of paralysis of acc.....	4½ days	4 days	24 hrs

These observations are borne out by subsequent experiments, with perhaps slight differences. It will be seen that the pupil begins to dilate most quickly for duboisine, next for homatropine, and last for atropine; and remains dilated longest for atropine, next for duboisine and shortest for homatropine; and that it ceases to respond to light in the same order of dilatation. The loss of accommodation, as will be seen, has a different order. It fails first for homatropine, next for duboisine and last for atropine; reaches total paralysis first for duboisine, next for homatropine and last for atropine; and continues longest for atropine, next for duboisine, and least for homatropine.

This order is modified by varying the strength of the solutions; a stronger solution of atropine acting quickly on the accommodation and persisting longer, duboisine showing less difference, while homatropine invariably passes off in about 24 hours whatever the strength of the solution. A stronger solution of homatropine acts more quickly and powerfully than a weaker one; a 1 per cent. causing paralysis of the accommodation in 50 minutes, a 2 per cent. in 39 minutes, and a 5 per cent. in 20 minutes. Another important difference to be observed in the table is the persistence of total suspension of accommodation. With the one-half per cent. solution it is for atropine, 18 hours; duboisine, 12 hours; homatropine, 3 hours.

Schäfer tested further the effect of eserine in counteracting the effects of these mydriatics. He found that its effect was decided, but fleeting, for atropine; less fleeting and more decided for duboisine; while it completely controlled the action of homatropine.

The tendency of a strong solution of atropine to produce a scarlatinal rash and dryness of the pharynx and fauces in some persons, particularly children, is an objection to its use; but this is not very frequent and never dangerous, while the vertiginous sensations caused by even a one-half per cent. solution of duboisine in many persons offers a barrier to its constant use. No unpleasant constitutional effects have yet been known to result from the application of homatropine to the eye. From its fleeting action it cannot take the place of atropine where permanency of effect is required, as in the treatment of iritis.

It would doubtless answer the purpose here by using the stronger solutions and by frequent instillations, requiring more constant attention to the patient. There is, however, a most important place for homatropine in ophthalmic practice. In selecting glasses for the correction of astigmatism and hypermetropia it often becomes necessary to paralyze the accommodation in order to ascertain the exact refraction of the eyes. An agent that will do this

effectually and with the least inconvenience to the patient, is the one that would most naturally be chosen. Again, in ophthalmoscopic examinations it sometimes becomes necessary in order to study the fundus in detail, or to hunt for peripheral striæ in the lens to dilate the pupil. Whatever will do this with but a short period of annoyance to the patient is the agent so long desired. In the hydrobromate of homatropine we have an article that accomplishes both these ends most satisfactorily.

Of it the 15th edition of the *U. S. Dispensatory* says:

"When it is necessary to paralyze the accommodation the influence of homatropine is rather feeble and uncertain."

We need not be surprised at this when the only notice it receives is a short foot-note. The writer's experience, and that of many others, fully establish the certainty of homatropine as a paralyzant of the accommodation if properly employed.

The correct way of using it to paralyze the accommodation is to instil into the eye a drop of a one per cent. solution every half hour until three applications have been made, and after two or three hours total suspension of the accommodative act will almost invariably be found. Sometimes shortly after the last instillation the accommodation will be found in abeyance, but to be certain it is best to wait a couple of hours. To dilate the pupil for ophthalmoscopic examinations a single application of a one per cent. solution will give a wide pupil in thirty minutes.

The hydrobromate of homatropine is not a very stable salt, and it has been found to lose its strength when kept in solution. This tendency, on account of its expensiveness, is a serious objection to its use by those who have not very frequent demands for it.

About a year ago, Dr. W. F. Mittendorf, of New York, had the kindness to send me some powders of a one per cent. trituration of the hydrobromate of homatropine, sulphate of eserine and daturine, with which he was experimenting, with the request that I give them a trial. I did so, and was so pleased with them that I ordered more, and now constantly use them to the entire exclusion of solutions.

In these triturations the salts are thoroughly incorporated with acacia and sugar of milk, and when applied to the eye are perfectly bland, painless and non-irritant. It is claimed for them that they will not spoil by age, if kept dry. Some powders that I have kept a year are as effective now as when first received. It is only necessary to keep in a wide-mouth, stoppered bottle, and when used, to dust a little into the conjunctival sac with a camel's-hair brush. It is as convenient as any method of application, can be regulated as to quantity with the greatest nicety and is more thoroughly absorbed than a liquid form by reason of its gradual solution in the conjunctival sac.

In quite a number of trials of the trituration of homatropine, applied every half hour for three times, I have invariably found total paralysis of the accommodation one or two hours after the last application, and have successfully worked out the refraction. The patient can call the next day with the accommodation fully returned and try the glasses, so as to see what modifications will have to be made before ordering them ground.

One who has had some experience in selecting glasses will never order the glass adapted to the eye in total paralysis of accommodation. The loss of a few expensive glasses and expressions of disapprobation by the patient, will teach him better.

This is certainly a great saving of time and annoyance to the patient and greatly expedites the physician's work. When a patient comes from a distance it greatly incommodes him to wait a week or ten days for the effects of atropine to pass off in order to make the second test of the glasses. It is unnecessary here to discuss the necessity of using a mydriatic in determining the refraction of the eye in many cases. When using atropine, many persons refused to submit to the annoyance and disability of a week's mydriasis; and, besides, the prolonged exposure of the retina to the flood of light that enters the enormously enlarged pupil, sometimes induced a very intense hyperæmia of the optic disc, and occasionally of the retina.

With homatropine it will be seen that extreme dilatation of the pupil never continues longer than a few hours.

The safety, certainty and convenience of the hydrobromate of homatropine for the purpose mentioned should certainly assign it a fixed place in ocular therapeutics until some better remedy shall have been discovered.

I would call especial attention to the eligibility of the triturations, which seem to meet all the requirements for convenience, agreeableness, efficiency and permanence.

THE USE OF ERGOT IN A PARTICULAR PHASE OF PNEUMONIA. NOTES ON A RECENT CLINIC IN THE MEDICAL WARDS OF MERCY HOSPITAL, CHICAGO.

BY N. S. DAVIS, M.D., PROFESSOR OF PRACTICE AND OF CLINICAL MEDICINE.

At the medical clinic in the Mercy Hospital, on March 28, 1884, the attention of the clinical class was chiefly occupied with a case of broncho-pneumonia in the sixth day of its progress. The patient was an adult male, about 30 years of age; short in stature, but broad across the chest and shoulders, presenting a well-marked sanguine temperament, with some corpulency. His habits had not been strictly temperate, and his occupation that of a laborer, but mostly within doors. He had been subject to attacks of bronchitis for some winters past, and once to an attack of pneumonia, three or four years since. Six days since, while scrubbing floors, and exposed to cold draughts with wet feet, he was attacked with severe pain in the sub-axillary region of the left side

of the chest, accompanied by difficulty of breathing, disposition to cough, and such feelings of indisposition as compelled him to desist from his work and retire to bed. The symptoms named continuing to increase, with the development of considerable general fever, a physician was called, who prescribed some medicines, and placed a large blister on the left side of the chest. On the third day he was removed to the hospital. On admission, his face was deeply suffused with redness; lips dry and slightly purple; tongue coated; skin dry; pulse 110, soft; respiration difficult, with a mixture of dry and moist bronchial râles over the whole chest except the lower part of the left side, where there were less râles, but decided dullness on percussion. The temperature was 39° C. (102.5° F.); the expectoration was not copious, but intimately intermixed with blood. The urine was nearly natural in quantity, but deeper red in color, and the bowels inactive.

The diagnosis was general sub-acute bronchitis with acute pneumonia occupying the middle and lower part of the left lung, in the early part of the second stage, or that of exudation, when the fine crepitant râle of the first stage had given place to some mucous râles, with decided dullness on percussion. After allowing each member of the class to auscultate the patient and to note closely the existing symptoms and physical signs, and pointing out the anatomical changes, with the coexistent diagnostic signs and symptoms, in each stage of ordinary pneumonic inflammation, and the progress of the present case to this its sixth day, and the third after its admission into the hospital, the lecturer remarked that there was no fixed or routine treatment that was adapted to all cases of pneumonia, simply because the morbid processes which constitute the different stages of pneumonic inflammation or pneumonitis, are liable to be modified much by the previous condition of the patient, and the coincident meteorological and sanitary influences that surround him. Cases occurring in the early and middle periods of adult life, in otherwise healthy and vigorous subjects, and in localities free from the causes of either typhoid or malarious fevers, will have the first, or stage of vascular engorgement, characterized by higher temperature, more acute pain, fuller pulse, and a little longer duration; while in the second stage the exudation will be more plastic, and the hepatization consequently more dense, which will correspondingly prolong the third or stage of resolution; and in some cases render it incomplete from the permanent identification of the plastic material with the alveoli and connective tissue of the lung. This does not prevent the recovery of the patient, but leaves him with permanent diminution of air space, and more liable to subsequent degenerative changes in the altered lung. It is this class of cases that are greatly benefited by a prompt and free venesection in the first stage, before the exudative process has made any considerable progress. The prompt abstraction of blood in the first stage of this class of cases benefits the patient in three ways, namely: by directly lessening the vascular fullness, and thereby lessening the amount of the exudation that is to follow; by diminishing the plasticity of such exudation as does follow the engorgement of the first stage: and by enabling other remedies to act more efficiently immediately after the diminished vascular tension caused by the venesection.

On the other hand, cases occurring in the very young or the old, or in those previously debilitated; and more especially in those at any period of life who are and have been surrounded by active malarious influences sufficient to impair both vascular tonus and blood plasticity, the first stage will be shorter, the exudation in the second more rapid and copious, but less plastic, while in the third, if diffuse suppuration does not occur, resolution will be more rapid and complete. If to moderate malarious influences there have been added such sanitary surroundings as develop the causes of typhoid fever, there will be added a still greater diminution of blood plasticity with marked impairment of vaso-motor nerve force, and giving a depressed or debilitated aspect to the whole assemblage of symptoms from the beginning of the attack. Pneumonia occurring under these various modifying influences, seldom presents any time, however early, in which general bleeding would not be more likely to do harm than good. The lecturer stated that when malarious influences predominated, he had often seen the most prompt and decisive benefit derived from giving the sulphate of quinine in doses of three to five decigrams (grs. v to viii) every four hours, with from thirteen to twenty centigrams (grs. ii to iii) of ergotine between, in the first stage of the attack. The direct effect of these agents in restoring the tone of the pulmonary vessels, if given within a few hours after the commencement of the attack, so resists the vascular engorgement and thereby lessens the amount of exudation, as to render the subsequent stages very mild, if not abortive. In cases occurring under strongly typhoidal influences, the quinine is less efficacious and must be given in smaller doses.

But the ergot or its active principle, ergotine, given in conjunction with digitalis to give more steadiness and tone to the action of the heart, is perhaps the most reliable agent we possess for resisting the over-engorgement of the pulmonary vessels during the first stage of the disease.

This had been strikingly illustrated in two cases of recent occurrence under the observation of the lecturer. The first was an adult, male, aged about 40 years, whose business was at the Stock-Yards, and who, in addition to much exposure to wet and cold there, had been out in company until a late hour at night, and while returning home was attacked with chilliness and severe pain in the left side of his chest, followed by a rapid development of all the symptoms of pneumonia. His family physician was called early in the morning and adopted a mild and proper course of treatment. No alarming symptoms occurred until the end of the second day, when the exudation began to increase with such rapidity that before the middle of the third, the left lung was completely engorged and dull on percussion from the apex to its base, and there was commencing crepitation in the lower part of the right. The breathing was much oppressed, short and frequent, with coarse

mucous râles rapidly increasing in the larger bronchi; the pulse soft, weak and 120 per minute; extremities cool, but temperature under the tongue 39.5° C. (103° F.); face suffused with a flush of a leaden or purplish hue; urine scanty and deep red color, and a copious, thin, and very bloody expectoration. It became evident that at the same rate of progress, before the end of another day both lungs would be completely filled with exudation and the patient suffocated. Being called in consultation at this stage of progress, it was agreed that the patient should take two decigrams (grs. iii.) of ergotine every two hours, and ten minims of tincture of digitalis with aromatic spirits of ammonia half way between, and a dose containing thirteen centigrams (grs. ii) of quinine, and two milligrams (gr. $\frac{1}{30}$) of strychnine every four hours.

A blister had been drawn on the chest, followed by emollient poultices, and the latter were continued, with milk and tea or coffee for nourishment. Under this treatment, faithfully executed, before the end of the next twenty-four hours, the whole aspect of the case was changed. The color of the surface was improved, the respirations were slower and deeper, the pulse 108 and more full, the coarse râles less in the chest, and the bloody expectoration diminished one-half. The interval between the doses of the medicines was now nearly doubled, and the improvement not only continued, but the patient made an unusually rapid recovery.

The second case occurred about one week later, and in the North division of the city. The patient was a young man who had been too closely occupied for several months in a dark, or rather artificially lighted and poorly ventilated office, during which the general tone of health had become somewhat impaired. After some exposure to wet and cold he became affected with some soreness in his chest and cough, and called at his physician's office for advice. Nothing more than a moderate degree of bronchitis, with some gastric derangements, were detected, and he was prescribed for accordingly. After three or four days he was taken suddenly with severe deep-seated pain in one side of the chest, much difficulty of breathing, more frequent pulse, and rapid increase of temperature. In a few hours his physician found him with all the symptoms and physical signs of the first stage of pneumonia, occupying the middle and lower lobe of one lung, with slight mixture of blood in the expectoration. All the symptoms increased so rapidly that in less than forty hours from the commencement of the pneumonic attack as indicated by the pain in the side, a consultation was called. At that time the patient appeared to be in imminent danger from the rapidly increasing exudation, which had nearly excluded the air from the alveoli of one lung, rendering it dull on percussion from the clavicle to the diaphragm, with a beginning of the same process in the lower part of the other. There was a leaden hue and dull expression of the face; short and frequent respirations, with an abundant thin and very bloody expectoration, causing coarse, moist râles in the bronchial tubes; pulse soft, small, and 130 per minute; and temperature under the tongue 40° C. (104° F.), but the extremities were cool. The urine was red or high-colored, and less in quantity than natural, and the patient complained of great exhaustion. It was evident that a continuation of progress in the same direction for twelve hours more would prove fatal to the patient. It was agreed that the patient should take two decigrams (gr. iii) of ergotine every two hours, and thirteen centigrams (gr. ii) of quinine with two milligrams (gr. $\frac{1}{30}$) of strychnine every four hours, with milk, koumis, and beef-tea for nourishment. At the consultation the following morning, the attending physician thought the patient in collapse and actually dying. He had remained with the patient through the night; the quinine and strychnine had been given as directed, but instead of the ergotine, an equivalent quantity of Squibb's fluid extract of ergot had been given hypodermically. On examination the patient presented the following singular assemblage of symptoms: the extremities and whole cutaneous surface were cold and wet with perspiration; the pulse hardly perceptible at the wrists, but the systoles of the heart 100 per minute; and yet the respirations were slower, deeper, and almost free from râles of any kind, with less frequent cough and almost entire suspension of the bloody expectoration. In other words, there was decided improvement in the respiratory function, in direct connection with a nearly collapsed condition of the circulation and entire cutaneous relaxation.

With the arrest of the pneumonic exudation it was evident that if any influence could be brought to bear capable of restoring the tone of the cutaneous vessels, and increasing the force and steadiness of the cardiac action, the patient might still be rescued from his perilous condition and perhaps enabled to recover. To accomplish this, he continued the quinine and strychnia as before, but in place of the ergot he was given ten minims of tincture of digitalis, five of tincture of belladonna, and fifteen of the aromatic spirits of ammonia, in sweetened water, every hour until the skin became dryer and warmer, when the interval was lengthened to two hours. He was also to take small and frequent doses of milk and coffee for nourishment. The result was all that could be desired. At a third consultation sixteen hours later, the skin and extremities were warm and dry; pulse 100, and of fair volume, though easily compressed; respirations 24, and deeper than in the morning; cough not frequent, and the expectoration containing but little blood. The bowels had moved twice during the day, and the quantity of urine had increased. Percussion still showed dullness over a large part of the side first affected, but it was evident that the crisis of the disease had passed. The belladonna had induced some dryness of the mouth and fauces with moderate dilatation of the pupils. The same remedies, however, were continued, but at much longer intervals, and the case progressed subsequently to an early recovery without further unusual symptoms.

The lecturer stated in conclusion, that such cases strongly illustrated the necessity of so studying morbid processes as to be capable of appreciating the special character and tendencies of each individual

case, and acquiring such knowledge of the action of remedies as to be capable of selecting and applying the one best adapted to fulfill any given indication or meet any unusual emergency, without regard to the name of the disease.

ON REDUCTION OF DISLOCATIONS BY MANIPULATION.

BY M. M. LOUIS HUTCHINSON, L.R.C.S.I., ETC., CHICAGO,

I would wish to invite your attention to the reduction of dislocations by manipulation, in the hope that others, becoming interested in the matter, might assist us by their information and experience. When we consider that it is the most scientific method of procedure, inasmuch as for its skilful and successful application it entails a knowledge of anatomy and mechanics; and that it possesses the advantages of being easily applied without distress to the patient, and with such little exertion on the part of the surgeon that he can usually dispense with any assistance, and that, moreover, in the event of its failure the other methods can be tried immediately after; surely it is a subject worthy of more attention than it would seem to receive at present. It is seldom made the theme of a lecture, clinical or other; the text-books award it only a fleeting notice, and consequently the student devotes little study to it, as being a subject of no importance; and the average practitioner ignores it altogether, and has at once recourse to one of the forcible methods. I do not presume to disparage these methods, as I know full well that there are cases where they alone are successful; but I venture to submit that in the majority of recent simple dislocations—especially at the hip and shoulder-joints—manipulation should first get a fair trial. Occasionally, the flexions, rotations, etc., that have been described by surgeons, will not suffice, and then the surgeon must try other movements, impossible to clearly describe, but which will invariably suggest themselves to his intelligence—the manœuvers of French surgeons—and by these means he will seldom fail to obtain success.

When a student, I was first attracted by the facilities and advantages of this procedure, and in my own practice I have obtained the most satisfactory results from it. With your permission, I shall briefly describe my last case:

— Wright, wagon-driver, aged 35, suffered from a recent subcoracoid dislocation at the right shoulder-joint. He had had six previous experiences of this dislocation, it occurring with him from the slightest cause. In every case it had been reduced after considerable difficulty by the heel-in-axilla or other of these methods, and he complained that the force employed in these efforts was such that he always suffered for a long time from its effects. I placed him in the dorsal recumbent position, and standing a little behind and to his right side, I placed my left hand on his shoulder, with the fingers behind and the thumb in front—this enabling me at once to steady the part and to feel and guide the head of the displaced humerus—which in all such dislocations can be distinctly felt beneath the coracoid process. I next with my right hand seized his arm by the wrist in the extended position, this affording me the greatest leverage, and raised it in the line of his body to an angle of about 90 degrees; then semi-rotating outwards, I made the very slightest extension, and the bone glided at once into place. I bandaged the arm to his side, gave the usual directions, and in a fortnight the man had resumed his occupation, quite well, thus showing that a more speedy and complete recovery follows the reduction of dislocations by manipulation.

MEDICAL PROGRESS.

SURGERY.

A LEECH REMOVED FROM THE LARYNX FIFTEEN DAYS AFTER ITS ENTRANCE.—Dr. Ramon Sota y Lastra reports a case in the *Revista Medica de Sevilla* of a man 64 years of age, robust and vigorous, who presented himself at the clinic, complaining of an abundant discharge of blood from the mouth, which had persisted for 15 days. The voice was hoarse and diminished, respiration labored and interrupted constantly by cough. The patient had lost one of his brothers with consumption, he himself had suffered from frequent catarrhs; had abused the use of alcoholic beverages, particularly brandy. His voice was always hoarse, and he coughed frequently. Fifteen days previously, while sweating freely, he drank some cold water, felt a sense of constriction in the throat, lost his voice, and respiration became difficult. Since then he had coughed incessantly on account of a tickling in the throat. Soon after drinking the water he commenced to spit blood, in small quantities at first, then in abundance. The swallowing of liquids and solids was performed without difficulty. Sleep was almost impossible on account of threatening suffocation.

Examination demonstrated the absence of fever, the integrity of the inspiratory organs, redness and a granulated appearance of the pharynx. On the posterior wall of the pharynx, behind the velum palati, was a little blood clot. The laryngoscope revealed a leech adherent to the epiglottis, and so placed that its caudal extremity lay upon the summit of the right arytenoid. During the attempts at removal made with the laryngeal forceps, the body of the leech was placed across the glottis and within the trachea. It was only after the fifth attempt that the leech could be seized and removed in spite of the brusque movements of the patient. All the symptoms disappeared as if by enchantment. It was supposed that the patient drank of water containing leeches.

The possibility of confounding these symptoms with tubercular laryngitis, without the aid of the laryngoscope, is very striking, and all means, other than direct extraction, for the removal or killing of the leech, would be likely to produce acute pharyngo-laryngitis. —(*Gazette Heb. des Sciences Medicales*).

ON THE TREATMENT OF BURNS.—Dr. John Duncan (*Edinburgh Clinical and Pathological Journal*), uses in wounds produced by the actual cautery an immediate covering of salicylic wool and collodion. The result is that no suppuration takes place. The wool ought to be teased out to an exceeding fineness at the edges, and laid on in successive thin layers, each of which is brushed with the collodion after its application. It then adheres with great tenacity, and is not apt, even with rough usage, to loosen at the edges. Inasmuch as a very little displacement of the edge of the shield or any loss of adhesion would be fatal to the plan of treatment, it is well, in the first place, to extend the dressing largely beyond the margin of the sore, and from time to time to apply fresh wool and collodion to the margins. At every stage, three, four, five, or six weeks, the wound is beautifully and typically healthy, but it does not cicatrize completely under six weeks. In burns of the first degree there is no dressing which gives so great ease, is so little cumbersome, and interferes so little with the usefulness of the limb. If there be vesication, no matter from what cause, the most perfect freedom from pain, and the most rapid healing, is brought about by pricking the blister, and when it is thoroughly evacuated, covering it with wool and collodion. Where blisters have burst or been ruffled, a dressing which is more easily removed is preferable.

MEDICINE.

THE ACUTE ARTERITIS WHICH IS CONSECUTIVE TO TYPHOID FEVER.—Dr. Baéri has made an important contribution to the history of this affection in the *Revue de Medecine*, where he arrives at the following conclusions:

1. There can be produced as consecutive to typhoid fever, an acute inflammation of the arteries; affecting the great trunks as well as the secondary branches of the heart and principal viscera.

2. The acute arteritis of the great trunks (the only one referred to here) is particularly localized at the lower extremity (22 out of 24 cases cited); it is most frequently unilateral, and especially on the right side.

3. In order of frequency the arteries which are most involved are, the posterior tibial and femoral, then the dorsalis pedis, and nearly as frequently the popliteal and anterior tibial.

4. In those cases where the phlegmasia is of considerable extent, the process originates most frequently in the principal trunk, to extend successively to the collateral branches, but sometimes, inversely, it commences with the smaller vessels to extend to the trunk,

5. Arteritis begins at the period of convalescence, when most of the patients first get up and try to walk, and this explains why the affection is so common in the lower extremities.

6. The character of the fever does not seem to have any appreciable effect on the frequency of arteritis, it being met with quite as often in benign cases as in the graver forms of the disease.

7. With regard to the anatomical lesions, the clinical evolution and the termination of the affection, there are two varieties in the arterial inflammation: the acute obliterating arteritis, and the acute parietal arteritis. These are but slight varieties of the same disease.

8. The obliterating arteritis is, anatomically, an embryonic infiltration of the three tunics, disappearance of the smooth condition, which becomes unequal and vegetating, producing in consequence a secondary thrombus which progressively establishes itself as a cruoric clot more or less voluminous, and becoming later a dense, greyish mass, adherent to the arterial walls. Most frequently a certain degree of peri-arteritis accompanies the phlegmasia of the vascular tissues.

9. If the coagulation obliterates completely the lumen of the vessel, and a supplementary circulation is not rapidly established through the anastomoses, the limb mortifies and takes on the external characteristics of dry gangrene. In certain exceptional cases, from venous thrombosis or neighboring phlebitis, moist gangrene may follow or occur, instead of the dry form.

10. Obliterating typhoid arteritis shows itself as follows:

(*a*) Pain more or less severe, exactly along the course of the arterial vessels while sometimes it is restricted to a certain region (as the calf, popliteal space, Scarpa's triangle) it may occupy the whole length of a limb, from the toes to the hip, and even to the iliacfossa. This pain is greatly increased by pressure, certain positions, movements or walking.

(*b*) Very marked diminution in the amplitude of the arterial pulsations; sometimes total cessation.

(*c*) Swelling of the affected member, without œdema or redness, and later with the appearance of violet markings or spots of local cyanosis, resembling even the spots of purpura.

(*d*) Lowering of the local temperature, with or without slight disturbances of sensibility, such as formication, partial anæsthesia, etc.

(*e*) Appearance along the course of the artery of a hard cord, painful to the touch, by consecutive thrombosis.

(*f*) Dry gangrene is the ordinary mode of termination of this affection.

11. Parietal typhoid arteritis is only a much less severe form of the preceding, which has a number of symptoms in common with it, but which is distinguished from it by certain important peculiarities, and by its termination. Its characters are as follows:

(*a*) Pain along the course of the diseased artery, generally less acute and less severe than in the obliterating form.

(*b*) Marked diminution in the intensity of the arterial pulsations, even to a total, but temporary, disappearance of these pulsations. In certain cases the disappearance of the pulsations is preceded, by a variable period, by a considerable exaggeration of their amplitude.

(*c*) Swelling of the affected limb, without œdema or redness, and without the violet spots.

(*d*) Lowering of the local temperature in most cases. In some cases, however, the temperature of

the affected side is raised to several tenths of a degree above that of the sound side.

(*e*) Absence of the hard cord along the affected vessel.

(*f*) A cure is the common termination of this affection.

12. The acute arteritis consecutive to typhoid fever may be confounded with muscular pains, local myositis, or neuralgia, when the hard cord is not present. When it is present, the affection might be taken for a phlegmasia alba dolens or a lymphangitis. The differential diagnosis may be established by noting the symptoms as enumerated.

13. When it is demonstrated that these morbid phenomena have their seat in the artery, that is obliterated by a blood thrombus, the question to consider is whether the arterial inflammation is primitive or developed secondarily about an embolic clot detached from the heart. The presence of a bellows murmur, the weakness, the irregularity, the subdued tone of the sounds of the heart; the acuteness of the pain, its sudden recurrence with the symptoms of obliteration, and finally, the appearance of vascular disturbances in several regions remote from each other, would be in favor of embolism. The normal character of the cardiac sounds and rhythm, the slighter degree of pain, less abrupt but perfectly localized, and the tardy appearance of the ultimate sphacelus, would indicate the primitive arteritis.

14. As to its pathogenesis, typhoid arteritis proceeds from two principal factors—local and permanent irritation from infectious parasitic germs, and from profound disturbances of vaso-motor innervation.

MATERIA MEDICA AND THERAPEUTICS.

INVESTIGATIONS ON INTRA-OCULAR PRESSURE.—Dr. Ernst Gruser has published (*Arch. F. exp. Path. u Pharm.*) the results of some manometric investigations on the intra-ocular pressure, and the effect that atropine and eserine have upon it. By the aid of a specially-contrived apparatus, the author has arrived at the following conclusions: 1. By means of his manometer he is not only able to determine the amount of intra-ocular pressure, or tension, but he can also detect and estimate with accuracy any variations of that pressure. 2. The amount of the intra-ocular pressure depends directly on the height of the vascular pressure. Narcotism similarly alters both, compression of the aorta raises the intra-ocular pressure by from 4 to 5 mm. Hg. Compression of the carotid on the same side causes a rapid fall of 5 or 6 mm. Hg., which, however, gradually rises again to the normal pressure. Tying both jugular veins raises the pressure, but only temporarily. The rapid fall of the arterial blood-pressure which takes place at death is accompanied by a rapid fall in the intra-ocular pressure. 3. In a cat during life, the intra-ocular pressure is on the average equal to 28 mm. Hg.; when dead the pressure is always from 8 to 10 mm. Hg. 4. The movements of the muscles of the iris always affect the intra-ocular pressure, dilatation of the pupil always causing it to rise, and contractions to fall. Section of the sympathetic causes a fall of from 2 to 6 mm. Hg. in the intra-ocular pressure, as well as narrowing of the pupil; irritation of the same nerves causes a rise of the pressure of from 5 to 6 mm., with dilatation of the pupil. 5. Atropine applied to the conjunctiva in quantities sufficient to cause mydriasis raises the pressure (there is sometimes a transitory fall before the rise). 6. Eserine similarly applied causes the pressure at first to rise, but in all cases in less than an hour the pressure had fallen below the normal.—(*Cantrelblat F. Klinischt Medicin. Medical News.*)

ON THE USE OF RESORCINE.—*La France Médicale* publishes a brief of the latest researches in the use of this drug, as given in the *Rivista Internazionale di Medicina e Chirurgia.* M. Rhigi bases his views on 100 observations. He groups resorcine with the aromatics, as among the best antiseptics and most powerful antipyretics. In 62 cases of intermittent fever he found the drug to act promptly, to be well tolerated, and to be readily absorbed. In one case there were symptoms of intoxication, due to imprudence on the part of the patient, who took 4 grammes at a single dose. In another there was a sense of heaviness with pain in the stomach, and in still another a general pruritus, but these symptoms were only of short duration. For this affection he used 4 to 5 grammes daily in an aqueous solution of 100 to 150 grammes. As to its use in this and other affections, he comes to the following conclusions:

1. Resorcine is well tolerated. It produces, but only for a short time, vertigo and tinnitus aurium, congestion of the face, and, very rarely, a sense of weight or pain in the stomach; nearly always there is abundant perspiration for about an hour.

2. Employed externally it is not caustic, and does not give off any disagreable odor.

3. In miasmatic affections, it is a sure means of combatting the febrile temperature and of opposing the malarial infection.

4. It has a certain influence in reducing the recent tumefactions of the spleen, but does not act on chronic tumefactions.

5. In typhoid fever, pneumonia and erysipelas it has a prompt antifebrile effect, but has no influence on the elevation of temperature.

6. In acute gastro-intestinal catarrh, it is of an undoubted usefulness, and has a rapid and positive effect; it may be combined with bicarbonate of soda.

7. In acute blenorrhagic urethritis, it should be preferred as a local application to other means that are more irritating and less prompt in restoring the mucous epithelium.

8. In acute and positive conjunctivitis and in lesions of the cornea it is one of the best collyriums.

M. Masini uses it in solution in affections of the ear, as a detersive, a slight astringent, an antiseptic, and a caustic, preferable to phenic acid, as the latter is irritating, cauterizing and debilitating to the organism, and has a disagreeable odor; preferable to iodoform with its disgusting odor, and to boracic acid, which has much less antiseptic and antiputres-

cent qualities. For an antiseptic solution he used 1 or 2 per cent. of resorcine; in granular otitis, for a marked astringent effect, 4 per cent.; for a strong caustic solution, 50 or 60 per cent.; in otorrhœa, for injections, an aqueous solution of 2, 3, 5 per cent.; in parasitic affections, a vaseline ointment of 10 per cent.

M. Massei recommends warmly the use of resorcine in ozœna, in powder or as a nasal douche. He employs 2 grammes in 600 grammes of water. If this does not relieve he uses the powder, and if a radical cure is not effected, great relief to the odor is afforded.

Bromide of Arsenic in Diabetes.—The *Journal de Médicine et de Pharmacie de l'Algeri* tells us that this drug has been employed four times successfully by Dr. Arpad Bokai. He prepares as follows:

Mix the following in a glass tube:

Arsenious acid } .....aa O gr. 1.
Carbonate of potassa }
Distilled water..... 5 drops.

Heat to limpidity and add enough distilled water to make 10 grammes. Add four drops of bromine and let the mixture stand for a day, when it is ready for use.

A diabetic, 22 years of age, who, at the time of his admission to the clinic, could hardly mount the staircase, was entirely relieved in a little less than three months. In that interval he gained in weight 8 k., 100 gr., and the proportion of glucose, which had varied between 170 and 111 grammes a day, was reduced to 0. During the last days the medicine was suspended and the patient nourished with rice.

The patient was submitted at first to a strict diet for 17 days, which diminished the proportion of sugar to about one-half. He then received the bromide for 11 days in three-drop doses, which was increased to 6 drops a day, in consequence of which the proportion of sugar diminished rapidly, and the analysis gave only traces. After introducing certain modifications to the diet, a small quantity of sugar was noted in consequence for 27 days. Five drops of the bromide was given, and 150 grs. of rice added to the diet list. Finally the drug was abandoned, the diet restrictions removed, and the patient dischaiged relieved.

Investigations into the Physiological and Therapeutic Properties of Trinitrine.—M. Marieux has studied the effects of this drug, (Bull. et Memoires de la Soc. de Therapeutique) in 23 experiments made on guinea-pigs, frogs, rabbits and dogs, and on man. These experiments were made in the presence of M. Dujardin-Beaumetz, and with the assistance of MM. Eloy and Huchard, with the following conclusions:

1. Trinitrine acts on the brain by producing phenomena of congestion.

2. It accelerates the heart beat, dilates the peripheral vessels, and diminishes arterial tension.

3. This vascular dilatation seems to depend upon a paralysis of the great sympathetic.

4. It acts but feebly upon the respiration, which becomes irregular.

5. It has but little effect upon the secretions.

In toxic doses:—

1. It produces, in the lower animals, clonic and toxic convulsions.

2. With the rabbit and dog, the toxic dose is variable, but is very large in all cases.

3. In man it commences with 10 drop doses of the alcoholic solution.

In the therapeutic application:—

1. It is indicated in all cases where cerebral anæmia might lead to fatal results.

2. It gives good results in rebellious neuralgias of anæmic origin.

3. Its most marked action is in angina pectoris.

4. It is of no use in diseases of the kidneys or lungs.

5. It is contra-indicated in all affections where there exists active or passive cerebral congestion.

6. It can be administered very satisfactorily in 4 to 6 drop doses of the alcoholic solution of 1 to 100, in the 24 hours, either as a potion or in hypodermic injections.

7. When compared with the action of nitrite of amyl, it is less prompt and less sure, but its effects are more enduring. In many cases it would be well to combine the two.

The Physiological and Toxic Action of Ergotine as Illustrated by Case of Poisoning.—Dr. Debréne (*Bull. Génde Thérapentique*,) gives the case of a young woman 25 years of age, ordinarily in good health, but suffering for 8 or 10 years from hæmorrhages coincident with the menstrual flow, She rarely passed three or four months without having one, two or three attacks of hæmoptysis at the second or third day of her courses, the loss of blood being sufficient to produce an anæmic condition which prostrated her for some time. Examination of the chest showed no affection of the lungs. To relieve this condition Boryjean's ergotine was used with benefit, but on one occasion she took of her own accord a dose equal to 5 or 6 grammes of ergotine. This was in the morning (Nov. 6.); it checked the hæmoptysis, but not the menstrual flow. She took her midday meal with a good appetite; in the afternoon there were a few sharp pains in the abdomen; at 6 P. M. she took a cup of chocolate; in fact, up to that time there were no evidences of any poisonous effect. At 6:30 P. M. she complained of a severe, dull pain, deep in the lower part of the abdomen, and of a want of air. Soon after she lost consciousness. The symptoms which followed were a marked dryness of the mouth, throat, and skin, pericardial pain which was extreme, with great difficulty in respiration. A deep pectoral and epigastric pain seemed to follow the course of the bronchi and of the œsophagus, and was compared by the patient to rough rasping with a curry-comb. While continuous, the pain was increased at regular short intervals. Vertigo followed; obscurity of vision, ringing in the ears, a sense of weight in the head, and constriction of the temples, formication in the extremities, chilliness and general coldness, insensi-

bility of the integument to the touch, to pain, to cold and warmth. This anæsthesia began with the fingers and toes, to spread over the whole of the body, including the lips, tongue, etc.

At 10 P. M., in addition to theses symptoms, tonic and clonic convulsions set in, resembling epileptiform spasms and followed by contraction of the flexor muscles, the fingers being markedly flexed upon the palms of the hands; extreme pallor, respiration 50, pulse 50, axillary temperature 97.5. A subcutaneous injection af ether into the forearm produced ready relief of all the symptoms, and a gradual progress, with frequent temporary relapses, was made from this time on to recovery, which was established (Nov. 9), in three days. During the treatment 10 grammes of chloral and more than 12 grammes of ether were administered, with a large amount of coffee.

This case brings out in bold relief the physiological action of ergotine. It shows that the absorption of this drug by the stomach is slow and gradual, and may give rise to a false security. It shows that its action is not so fugacious as has been supposed, and that it is not eliminated so rapidly as has been supposed. It indicates the valuable assistance we have in injections of ether in combating the toxic action of the drug.

In spite of the large amount of coffee given, the amount of urine was not increased; it would seem as if the contraction of the minute blood-vessels of the kidneys prevented an abundant filtration. And this action upon the vessels would explain the vertigo, intellectual torpor, and feeling of extreme weakness, that is to say, the diminution of the spinal excito-motor power (anæmia of the brain and cord), the chills, lowering of temperature, dryness of the skin and cessation of the salivary, sudorific and sebaceous secretions, difficulty of respiration (accumulation of asphyxiated blood in the medulla oblongata), and the convulsive attacks (repletion of the veins of the nerve centers and sinuses of the dura mater).

The deep-seated pains in the chest and epigastric region were evidently due to spasms of the muscle fibers of the œsophagus and bronchi, just as the contraction of the skin was due to spasms of the little muscles attached to the hair follicles.

The most curious of these phenomena is the anæsthesia which was complete from the soles of the feet to the scalp, but which did not prevent the patient from appreciating strong, firm pressure, as if the muscular sense was retained.

OBSTETRICS AND GYNÆCOLOGY.

A FAVORABLE CASE OF RUPTURE OF THE UTERUS.—The *Annales de Gynécologie* give the details of this case in the words of Professor Pajot, and in his happiest style. The case occurred in a multipara. The midwife, after rupturing the membranes, called in a physician, who found the woman suffering from a severe pain in the abdomen, and losing considerable blood; he became demoralized and left the case, when the woman was brought to the clinic. Being anæsthetized, Pajot found a narrowing of the pelvis, a shoulder presentation, the placenta inserted on the inferior segment of the uterus, and a rupture of the vagina and uterus which had its seat in the anterior cul-de-sac, and was prolonged along the anterior wall of the uterus, being sufficient to allow the entire hand to pass through the orifice. The hæmorrhage was excessive. He performed version by external and internal manipulation, and delivered the trunk. The head was well flexed, and the inferior maxilla was easily reached, but it was impossible to disengage the head, on account of the narrowness of the pelvis, which required for its removal a single application of the cephalotribe. On the tenth day, the woman's temperature was 100.4; the pulse 100; she took bouillon and digested well. A diarrhœa which earlier in the case was very obstinate, had about ceased. On the thirtieth day her pulse was 84; temperature 99; well nourished, good color, and out of danger except from possible embolism or hæmorrhage.

OBSERVATIONS ON THE NORMAL TEMPERATURE OF THE HUMAN BODY.—Dr. William Carter, as Physician to the Royal Southern Hospital of Liverpool, has communicated some interesting records of temperature to the *Liverpool Medico-Chirurgical Journal*. After noting the observations so generally made regarding a periodical rise and fall in the temperature of man during the twenty-four hours, a minumum about 6 A. M., and a maximum between 4 and 9 P. M., independent of sleep, he set himself to work to determine whether this periodicity might not be modified in accordance with the ordinary habits of life, and selected for observation the night nurses and night sisters of the Royal Southern Hospital. Their routine is as follows: Rise at a quarter to eight P. M., down at twenty minutes past eight, breakfast at 9, and then enter on their hard duties. Their duties cease at 9 A. M. They take exercise till twelve, when they go to bed. Six of these were selected. They had performed this duty respectively, three years, ten years, seventeen months, two months (2), three weeks and lastly, the night of commencing observation was the first night of the new duty.

The temperature was taken every two hours, with the thermometer in the axilla for five minutes, and continued for five to six days. The record is given in detail, and establishes the conclusions: that a daily depression of temperature takes place in the healthy during night and early morning; that such a change of habit as turns night into day, so far as employment is concerned, does not permanently affect the character of this depression; that a daily range of from two to three degrees Fahr. may take place consistently with health; that an axillary temperature of 96°, or even lower, at some period of the night, is consistent with health, and that the character of the daily oscillation is not markedly affected by food.

The American Journal of Ophthalmology is the title of a new journal announced to appear next month, to be published by Jas. Chambers & Co. The editorial management is to be in the hands of Dr. A. Alt.—*St. Louis Courier of Medicine.*

THE

Journal of American Medical Association.

PUBLISHED WEEKLY.

THE EDITOR of this JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information, should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

SUBSCRIPTION PRICE, INCLUDING POSTAGE.

PER ANNUM, IN ADVANCE..... $5,00.
SINGLE COPIES..... 10 CENTS.

Subscriptions may begin at any date. The safest mode of remittance is by bank check or postal money order, drawn to the order of the undersigned. When neither is accessible, remittances may be made at the risk of the publishers, by forwarding in REGISTERED letters.

Address

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 65 RANDOLPH STREET,
CHICAGO, ILLINOIS

SATURDAY, APRIL 5, 1884.

MEDICAL COLLEGES AND THEIR ENDOWMENTS.—A medical college should not be an institution for the manufacture of physicians, but one where the science and art of medicine is taught, where their study and advancement is encouraged. The busy practitioner can seldom keep fully abreast of the times. This partial ignorance is offset by personal experience. The fact, however, makes a thorough drill in college especially desirable. Much has been written and spoken about the time requisite for the instruction of students, the laboratories and hospitals needed, and the personal attention from instructors that is desirable. Too much cannot be said on these points, but back of them all is the first and fundamental requisite —liberal endowments—both for the maintenance of laboratories and the support of professors. Students to-day cannot be taught as simply and inexpensively as fifty years ago. Science, and the practical teaching of it, has made too much advancement for that. Not only are dissecting rooms and chemical laboratories needed, but physiological and pathological as well. Clinical teaching has so far improved that where it is best taught the classes are small, and consequently many instructors are needed, or a great deal of time must be devoted to the work by a few. If many are employed, it is almost impossible to get enough thoroughly good teachers in even our largest cities to fill the places. When there are many it is seldom also that they take the same interest in their work that they would if they did more of it. Teaching becomes with them merely an extra labor, not the one their interest leads them to follow with most diligence. To properly care for a laboratory of any kind and give instruction in it, several hours consecutively must be devoted to it each day. This is more time than a physician dependent, even to a limited extent, upon his practice for support, can devote to it. If the professor's efforts are directed to building up and cultivating a practice by the aid of his professorship, he will not teach with the purpose of imparting the most information and drilling it into the students. Teaching of any kind to be efficient, must, as a rule, be done by those who are independent of the patronage of their school. They can then demand of the students the work and study that is really necessary. Professorships in medical colleges should be so well endowed that those who hold them could devote all their time either to teaching and the preparation for it, or to original investigation and the encouragement of it in others.

Our colleges are very poorly endowed. We cannot expect a change in this respect, however, until the medical men of the country become fully awakened to the fact, and make known the need of endowments to the laity. In the last printed annual report of the United States Commissioner of Education[1] it appears that of all the colleges in the country only seven have productive funds. The rest depend wholly on their income from tuition for support, and even the seven do practically the same, as will be seen from the following statement:

The Medical Department of Yale has a productive fund of $29,102, which yields an annual income of $4,251. The Medical College of Indiana has a fund of $1,000, which yields $50 yearly. Harvard Medical School has a productive fund of $280,391, which yields $7,141 annually. Kansas City Medical College has $1,000, which yields $100. The Medical Department of the University of Pennsylvania has $50,000, with an annual income from it of $3,000. The Medical Department of Howard University has $2,200, which yields $154 yearly. Meharry Medical Department of Central Tennessee College has $2,500, but by the report is not credited as receiving any income from it.

It is a matter of self-interest with our citizens that the physicians in their midst are thoroughly competent. Most persons place at once implicit confidence in the doctor they call. Their health, often their lives, are dependent upon his skill and knowledge.

They have scant means of measuring the ability of physicians. In no other profession can charlatans and pretenders work so safely. The giving of money

[1] Report for 1881, printed in 1883.

for the proper endowment of medical colleges will not, therefore, be a charity to a few medical teachers, but a means of protecting the public, as efficacious and as necessary as general and judicious laws regulating the practice of the profession.

There are schools that have been for years doing their utmost to furnish good teaching that are thoroughly deserving of aid. It is not new colleges that is required but a more efficient management of old ones.

MEDICAL SERVICE ON SHIPS.—During the past two years the subject of better medical service in merchant and emigrant vessels traversing the oceans has attracted considerable attention in England, and it is at present engaging the attention of prominent members of Parliament. It is well known that a large proportion of the ocean traveling is done in English ships and steamers, not only across the Atlantic, but also to Australia and the Indies. According to the following statements of Dr. J. A. Irwin, a well-known English physician, who has recently taken up his residence in New York, there is urgent need of improvement in the direction of more efficient and uniform government regulations concerning the supply of competent medical service on board of all vessels carrying passengers of any class on the oceans. Speaking of the English lines recently to a reporter for a daily paper, he says:

"Of all the lines? You must bear in mind that England has not one mercantile marine medical service but perhaps fifty, each under different orders and regulations, and varying in customs and conditions. There ought to be one national service. There is comparatively little cause of complaint with possibly two or three companies, but the others are open to many objections, more than I can think of enumerating. This diversity of the service is a strong ground of complaint, as it leaves no central responsibility for or power to correct abuses or neglect. There is no regulation or definition of the duties, responsibilities, status, salary, grade, or even of the accommodations of a surgeon on shipboard. There is no fixed pay, or rank, and no examination made of ship's surgeons by any official power. An economical company or miserly owner can engage any incompetent young medical graduate, without reference to anything but the lowest salary he will ship for or the highest price he will pay to practice on the passengers while taking a pleasure voyage or two. The highest wages now paid surgeons on steamships is only $50 a month, or about the wages of a cook or steward. Perquisites are few nowadays; so you see even the best steamers give very insufficient pay.

"Competent men can seldom be had at these rates; when such as are competent are forced by personal necessities to ship as surgeons, they remain aboard only until they can better themselves. Hence, there is little stability about the service, and you seldom find a really competent surgeon for any length of time in a company's employ. The companies and ship owners engage surgeons as they do seamen, by the voyage, and as a consequence are often forced to engage a new surgeon at a day's notice before sailing. Often crowded passenger-ships are sent out in medical charge of young and inexperienced surgeons, liable themselves to sea-sickness, and who do not even know what duties they will have to perform, for instance, on reaching quarantine in your port. At other times men in poor health, which in fact forces them to be at sea for their own strength, will be engaged as surgeons, Of course such cannot be depended upon to perform all the service demanded of them on a crowded vesssel. Then, there is another class still more objectionable; I may call them men ofdefective personal habits, incapable of commanding and retaining practice at their homes. There are many of these incompetents on English lines. Proof of it? Certainly. Here is a return made to Parliament by the Board of Trade last year. It shows that of 141 surgeons who, during the first six months of 1882, had full medical charge of ships carrying passengers to this country,—transatlantic steamers, mind you,—only 27 who possessed any qualifications as a physician and surgeon had reached 30 years of age. Forty-six were under 25 years. And here is a point which will astonish you. Sixty of them would have been ineligible through lack of professional qualifications for any appointment in our Army, Navy, asylum, prison or poor-law service. That is to say, these ships, and your Americans on board of them, have been dependent for medical advice on men who are pronounced by English law to be insufficiently qualified to treat English convicts and paupers.

"Now, I want you to understand that among the ships' surgeons some are all that they should be. I could name men who are competent to fill any position with honor. The trouble is that under the present circumstances the position seems made to suit the half-qualified youngsters, and the competent men are forced into it upon exactly the same terms. The return which I have just shown you, proves that on the 108 ships in question plying between this country and England, there were 33 medical officers who were either dismissed or resigned during the period

named. The surgeons have no assistance whatever on these steamers, not even a hospital nurse, and as a consequence, during the times of general sickness, one man cannot do all the work satisfactorily. I suppose you think that sea-sickness needs no treatment; but I have myself seen two cases of death from heart disease which would not have occurred if the violent vomiting from sea-sickness, which was the immediate cause, had been controlled by treatment."

Many might suppose that the short time now usually occupied in crossing the Atlantic, would give but little time for any other than sea-sickness, and consequently that the quality of medical service was of little consequence. This error will be effectually corrected by the following statistics given by Dr. Irwin:

English statistics, published by order of the House of Commons in 1882, show that of the thirteen principal English lines to this country the mortality in 1881 on one or two of the inferior lines reached one in every 509 of those embarking. The lowest rate was on the Inman line (one in every 3,313); but as this mortality was among immigrants who within a few days of sailing were passed as healthy, the rate is still too high. It must be remembered that these figures represent deaths on board during a short trip on the ocean—usually a healthy thing to take—of only eight or ten days. Further—and here is the most serious consideration—nobody can tell how many of the sick and enfeebled who are landed here die at their destinations of diseases contracted, but not fully developed, on board ship. The trip across the Atlantic is so short that the germs of contagious diseases caught on shipboard do not develop until the affected persons have passed quarantine and are possibly thousands of miles in the interior. Statistics are, therefore, incomplete and untrustworthy.

There is serious danger in this unsatisfactory medical service, not only concerning individual illness of the passengers, whether in the saloon or the steerage, but concerning the general health of the communities to which the passengers and immigrants are bound.

As the people of no country are more interested than those of our own, either in the healthfulness of ocean travel, or in the danger of importing contagious diseases into different parts of the country, it would be well for the profession here, as well as our government, to cordially coöperate with whatever intelligent and judicious efforts are made in England or elsewhere, to improve the medical service on ships of every class.

We make no apology for occupying so much space in the present number on the important subject of milk supply in large cities.

Medical College Commencement.—The twenty-fifth annual Commencement exercises of the Medical Department of the Northwestern University, better known as the Chicago Medical College, were held in the Grand Opera House on the afternoon of March 25, 1884. Rev. Joseph Cummins, President of the University, presided on the occasion and conferred the degrees upon the graduating class, which numbered thirty-eight in regular course, one ad eundem and one honorary. After the opening prayer and music, the Dean of the Medical Faculty announced the certificates for the under graduates, certificates for special work in the Hospital and Dispensary, and the award of prizes. The prizes for the two best theses were taken by C. S. Bacon, of Wisconsin, and George A. Staples, of Iowa. The Alumni prize for the best average scholarship in all the branches of the three years' study was taken by A. C. Helm, of Illinois; the Senn prize for the best anatomical preparation by T. H. Swayne, of Illinois; and the Microscope prize offered by W. H. Bullock of Chicago and J. Grunou of New York, to the candidate for graduation who should sustain the best examination in the theory and practice of microscopy, open for competition to the graduating classes in all the colleges of Chicago, both literary and medical, by C. S. Bacon, of Wisconsin. The practical working of the long college sessions, the thorough grading of classes, and the annual examinations of each class in its grade, instituted by this college is well illustrated by the following remarks of the Dean of the Medical Faculty, in presenting the present class of candidates for graduation to the President of the University:

"*Mr. President:*—The college class represented by the candidates for graduation before you entered their first year, numbering SIXTY-FIVE.

"The effect of the examinations in the branches of medicine embraced in the first year course, was such as to convince FOURTEEN of these that they had better seek some *shorter* and *surer* road to the principal object of their ambition, a *diploma*, and consequently the class in its second year numbered only FIFTY-ONE.

"The effect of the examinations in the studies of that year added to the first, produced the same convictions on TEN additional members. Consequently the class in its third and last year numbered FORTY-ONE.

"I regret to say that the result of the third year examinations has caused *three* (3) of these to be missing from the class as they stand before you today.

"These facts will justify me in assuring you that the 38 young men whom I present to you to-day as candidates for the degree of Doctor of Medicine, and for a formal admission into the ranks of one of the noblest and most responsible of professions, have been subjected to a patient, systematic and thorough course of medical training in every department, from the elementary work in the laboratories of anatomy, chemistry and histology to the direct practical study of disease at the bedside of the sick in the hospitals and dispensaries. More than this—they had been well prepared for professional studies by a good general education. *Seventeen* of the 38 are graduates of literary colleges in good standing, embracing some of the colleges and universities of the highest standing in our country. The remaining 21 have given the medical Faculty full evidence of possessing a good academic education. As the representative of the Faculty of the Medical Department of the University over which you preside, I take pleasure in asking you to confer on each member of the class here presented the degree of Doctor of Medicine, feeling a strong assurance that by their attainments, their industry, and their personal integrity they will prove an honor to their Alma Mater, and a blessing to the communities in which they may live."

SOCIETY PROCEEDINGS.

SUFFOLK DISTRICT MEDICAL SOCIETY.

SECTION FOR CLINICAL MEDICINE, PATHOLOGY, AND HYGIENE. ALBERT N. BLODGETT, M.D., SECRETARY.

Special Meeting, February 27, 1884. Meeting called to order at 8 o'clock, Dr. Robert T. Edes, Chairman, presiding.

The Chairman announced that Dr. Morris, of Philadelphia, who was expected to present an essay, was detained by sickness and would not be at the meeting. Dr. H. O. Marcy, however, had received the paper from Dr. Morris, and would read it. The title of the essay was

ON MILK SUPPLY IN LARGE CITIES[1]

Probably few persons whose attention has not been especially called to this subject have any idea of its importance in an economic as well as sanitary point of view; and it may therefore be well to preface what I have to present to you to-night with a statement, approximate only unfortunately, as full and reliable figures are hard to obtain, of the amount of milk—or what purports to be such—required daily in our large cities.

[1]By J. Cheston Morris, M. D., formerly Attending Physician to the Protestant Episcopal Hospital, Philadelphia.

Dr. H. A. Pooler, of Goshen, N. Y., estimates the amount sold daily in the cities of New York, Brooklyn, and Jersey City, at 500,000 quarts, or 182,500,000 quarts annually. I have elsewhere shown from the statistics furnished by the Railroad Companies and the Board of Revision of Taxes, that the amount in Philadelphia alone is 57,548,470 quarts. The supply of Boston I have sought for, but have not received a reply from the Secretary of the State Board of Health. But if we compare these figures with the population of the four cities named we find in round numbers as follows:

182,500,000	quarts	consumed	among	2,500,000	persons.
57,500,000	"	"	"	900,000	"
240,000,000	"	"	"	3,400,000	"

or about 70.6 quarts annually, or not quite $^2/_5$ of a pint daily for each man, woman, and child. This is rather more than the average of England, less than half that of Wales, not one-third that of Scotland or Ireland, and far below that of Norway, Sweden, Switzerland, and the Tyrol, as we learn from Edward Smith "On Foods" and Brassey "On Food and Labor." We may therefore fairly conclude that this is not an overestimate of the actual supply in these cities. If we now multiply these 240 millions by six cents, the *lowest* price paid by the *consumer* for the article, we obtain the amount annually paid by the inhabitants of these four cities, namely, $14,400,000, or nearly $40,000 daily. Surely then we may well pause for a moment to consider what it is that we buy at such a price, and what its real value is to us.

From Simon's Animal Chemistry, vol. ii., p. 62, we may deduce the composition of cows' milk as follows:

Water		860 parts.
Solids, Butter	36 parts	
Casein	68 parts	
Lactin, coloring matter, etc	30 parts	
Salts	6 parts	
In all	—	140 parts.
		1000 parts.

And Dr. P. Vieth, in the *Analyst* for March, 1883, gives the results of 12,430 analyses made for the Aylesbury Dairy Company, in London, during 1882, which practically accord with the above.

A quart of milk, of the average sp. gr. of 1.031 as given by Dr. Vieth, would then weigh at 60° F. about 15,092 grains, of which 12,979 grains would be water, and 2,113 solids. Of the latter there would be:

Butter	543.3 grains or nearly	1¼ oz. avoirdupois.
Casein	1,026.3 grains or more than	2⅓ oz. avoirdupois.
Lactin, etc	452.8 grains or more than	1 oz. avoirdupois.
Salts	90.6 grains or nearly	1-5th oz. avoirdupois.

If we now take these quantities and value them at market rates, say roughly:

1¼ oz. butter @ 30 cents per lb	.02
2⅓ oz. cheese @ 6 cents per lb	.01
1 oz. milk sugar @ 8 cents per pound	.005
1-5th oz. phosphates, etc	.005
	$0.04

We obtain a value of milk which corresponds curiously with its *wholesale price* paid to the producer in the vicinity of Philadelphia and New York, and its actual minimum cost of production. The latter may readily be ascertained approximatively by estimating the average annual yield of a good dairy cow

at 2,000 quarts, and the food required at five tons of hay or its equivalent, besides some bran, corn meal, roots, etc., so that the farmer is only selling his hay at $15 per ton when he receives 4 cents per quart for his milk, besides taking all the additional labor, investment of capital, and risk of loss.

I have spoken thus of the pecuniary value, let us now consider its food value. By comparing the statements of Valentin, Lehmann, Bidder and Schmidt, Chossat, Bèclard and Carpenter, as to the amount of food required daily, with the rations of the British and French armies and those of the United States (as will be seen on referring to my article in the *Philadelphia Medical Times*, June 21, 1879), and with the amount of solids as given above, it will be seen that *two quarts* of fresh milk and twelve ounces of bread would be sufficient to maintain a laboring man in full health and strength, the amount of nutritive material being greater than the ration of the French cavalryman. On three quarts milk and twelve ounces bread a man would soon fatten. By comparing the cost of sufficient milk and bread to nourish efficiently a man with that of any other food we shall be struck with its cheapness. But it is not in this that its greatest value lies. It is in the exact adaptation of the various constituents, the fatty, the starchy, the saline, and the nitrogenous, to the wants of the human economy, adaptation both in proportion and kind: so that no other article comes so near to being the universal food of man. Not only does he as all other mammalia depend upon it almost exclusively during the first two years of his existence, but during childhood and adult life milk or its products are essential to our well-being, while for invalids it furnishes the most available and reliable form of nourishment, in many cases the only form. Nor does any mode of preparation enhance its nutritive value. In by far the greater number of instances it is more wholesome and nutritious, more easily digested and more readily absorbed just as it comes from its source than in any other guise. It satisfies the appetite, quenches the thirst, relieves weariness, sustains for the work more surely and quickly than anything else.

Of course its mode of administration and the quantity taken must vary with the age of the individual and the object sought to be attained. We frequently hear from patients the complaint that they do not like milk, and never did, that it never agrees with them, constipates them, etc., etc. Now, in most instances, this is merely prejudice, based sometimes on injudicious mode of taking, or on an inferior article, or on the total absorption of the amount taken, which thus leaves no mass of undigested residue to act (as is the case with food containing woody fiber) on the coat of the bowel as a mechanical irritant. If milk is given in divided doses at intervals of three or four hours, to be sipped slowly, while a little bread is eaten with it, it rarely fails to agree with a healthy stomach or even to restore a debilitated one; if there is any sense of oppression it is a good plan to give one or two teaspoonfuls of liquid rennet with, or immediately after it. While any tendency to constipation may be met by the addition of a little *cream* to the whole milk or the use of a rhubarb pill at night. The benefits of an exclusively milk diet in cases of enfeebled digestion, chronic liver and kidney disease, consumption and impaired nutrition generally, will hardly be believed by those who have not made a thorough trial of it.

Such, then, as briefly as I can give it, is the value of milk from a physiological and medical point of view. No dietary is complete without it or its products, and we all feel keenly its loss when compelled to do without it. But how shall we get it pure and good—so perishable, so prone to change, so apt to absorb impurities, and to be the carrier of the zymotic elements of disease instead of the genial nourishment which vivifies?

In the country, in small towns and villages, we may fairly attribute the health we often see among those subjected otherwise to many privations to the ease with which this great necessary of life is procured. But as cities grow in size, as more second and third parties have to come between the producer and consumer, the difficulty of procuring reliable, nutritious milk increases. Human cupidity comes in, and the bountiful nourishment is robbed of its richness by degrees; water is added, cream is abstracted, and what is sold to the mother for her hungering babe is but the ghost of its former self. Some years ago, in the Campo Santo, at Munich, I walked through the halls where are laid the corpses of those awaiting interment. That day there were over thirty, and all but two or three were those of children. I asked my guide if any epidemic was raging. He looked surprised, and said "No." When asked how there came to be such an excessive proportion of young children, he shrugged his shoulders and said, "Many are the children of poor seamstresses and store girls, They have little to eat themselves, and nothing to give their children; the latter are starved and die, often much to their parents' relief." As I looked at the poor, pale, pinched cheeks and wasted bodies, and thought of the effects of cholera infantum, diarrhœa, tubercular enteritis, etc., which play such sad havoc among our children in large cities, the thought occurred to me, how much of all this is the result of the miserable trash with which we delude ourselves and the poor little innocents committed to our care, calling it milk forsooth! Bad air has its victims by thousands; bad food by its tens of thousands. In New York City alone, as I am informed by Dr. H. A. Pooler, the number of deaths among children under five years of age was reduced 3,673 in last year below that of 1882, in consequence, as he believes, of the improvement effected there already in their milk supply, the adulterations having been lessened to the extent of 100,000 quarts daily.

Various methods have been devised in the effort to remedy this supply of adulterated milk. Systems of inspection under govermental authority have been largely resorted to, and with excellent effect; they should be increased and made more stringent. But they are cumbersome and expensive, and too often fail to protect the very classes that need it most. The Aylesbury Dairy Company in London has a most efficient and extensive system of inspection and de-

livery, but this must increase the cost to the consumer. In Paris a Mr. D'Arcy has successfully introduced the method of supply in glass bottles; and in New York Mr. F. Ratchford Starr has done the same; while in Boston Mr. Burnett and others I believe, are largely engaged in distributing milk by the same method. I have also been doing so in Philadelphia since 1878, and my example there was followed by a number of others, so that I feel justified by the results of experience in urging the members of our profss-sion and others who are interested in the welfare and health of the community to endeavor to extend the use of milk shipped in glass jars.

The method which I have adopted, for which the Agricultural Society of Pennsylvania awarded me an honorable diploma in 1879, is as follows:

The cows are well fed, and kept clean, before being milked the udders should be thoroughly freed from dirt. The milk when drawn is strained into a large can in which is suspended a smaller one filled with ice and salt, so as to cool it as rapidly as possible. It is then thoroughly stirred, so as to equalize the distribution of cream; and from a faucet at the bottom of the large can the milk is drawn into quart jars, each of which is then closed and sealed with a label bearing the name and address of the producer and the date of shipment; twenty jars are then packed in a box and sent to the city. The empty jars of the previous day are returned, cleansed, and prepared for shipment again.

The advantages of this method over the usual one among us in large cans are:

1. The milk must be clean; any dirt would show at the bottom of the jar.

2. It is free from contamination by foul air, etc., in transit, as the jars are heametically sealed.

3. Each customer gets an exact quart, as the jars must be *filled* to prevent "churning."

4. Each customer gets his own share of cream, neither more nor less, as it is put up before the cream has a chance to separate.

5. It is for the interest of each producer to send the best article he can, as his reputation—and therefore the price he gets—depends upon the quality of the article which bears his name; and he can guarantee to the consumer, as long as his label is undisturbed, the quality of the article furnished.

And this brings us to the consideration of a most important point. As I have shown, good milk *costs* four cents a quart to produce; but the competition of trade often drives the wholesale price down to three and a half or three cents. In the eyes of the dealer, and too often of the too close-buying customer, milk is only milk—all milk is alike—and the honest man who sends whole (pure) milk gets no more for it than his neighbor who removes half the cream, or adds a little water "to pay the freight." So long as this is the case in the estimation of the community, so long may they expect to be imposed upon. Just as soon as they recognize the justice and propriety of paying their milk producers in proportion to the quality and value of the article sold, there will be no difficulty in having on our tables in large cities milk just as pure, just as good, just as sweet, nutritious and wholesome, as if taken immediately from the spring house in the country. There is a difference too—and a great difference—in the milk produced by different breeds of cattle. Those commonly known among us may be divided into three groups: the Jersey, or Channel Island; the Devons, or long-horns; and the Durhams, or short-horn. The latter yield abundantly a rather pale blue milk moderately rich in casein, but not in cream or sugar. The Jerseys yield a smaller quantity of milk, rich in yellow cream, but poor in casein and sugar. The Devons, or long-horned red cattle, yield a white milk nearly equal to the Jerseys in cream, and very rich in casein and sugar, and hence having the highest nutritive value. Next to them comes that from grade Jerseys: next, that from good common cows. That from pure Jerseys is deficient in casein, that from pure Durhams is watery.

I have thus, I think, called your attention to a matter of vital importance, and tried to show the way out of the great difficulties which surround the distribution of milk—pure milk—in large cities. The measure of success which has attended this method, and its more and more extensive adoption, lead me to hope that in the not distant future its cleanliness and superiority in every respect will put an end to present milk-can system with all its dirt and liability to fraud and deception.

DISCUSSION.

The paper was attentively listened to, and on its conclusion an interesting discussion was opened by Dr. H. J. Barnes, who said: Personally my experience with the milk supply of Boston has provoked the greatest indignation. It begins as a producer on my father's farm sixteen or eighteen years ago, when we, in common with our neighbors, were in a continued state of irritation by what seemed unfair treatment by the contractors. The violation of agreement as to what they would pay for the milk of a stated season, the sending back of sour milk, usually with the cream taken off, the necessity of holding the milk ourselves when at certain seasons the contractors found they they had engaged more than they could dispose of, were among the causes of trouble, which continue to the present time, judging from the expressions of views at the recent largely attended meeting of producers in Boston, and from the following letter just received from a milk producer:

"The contractors hire the car, and although obliged to carry milk for private parties, yet they generally dictate terms, so it is almost impossible for producers to get at consumers direct. Twenty-seven cents per can of eight and a half quarts, or three and thre-seventeenths cents per quart, is what my neighbors have had thus far this winter. This month one cent more per can, or three and one-fourth cents per quart, while consumers, some of them at least, pay eight, and get extended "topped" milk at that. Producets are compelled to keep a part of their milk at home in order that these cormorants may supply the good people of Boston milk watered and skimmed, with other abominations thrown in. Right glad would the producers be to send their milk direct to the consumers if it were possible, but now it must go through the same old channel."

There is an inevitable variation in the supply and in the demand for milk. The farmers dispose of the milk to contractors who make a price for a certain time and agree to take all that the farmer produces. Often the quantity is much in excess of the demand and the contractor frequently breaks his bargain with the farmers, who then are obliged either to accept a smaller price for the milk or to make butter or cheese in order to utilize the surplus.

The laws of trade ought to regulate this matter, but if a farmer withdraws his dairy, and attempts to make butter, he is met in competition by the manufacturers of oleomargarine, and it does not pay to make honest butter. One of the most objectionable features in our system of supply is the custom of holding the milk in Boston. In many instances milk produced in the morning is taken to the car in the evening and transported to Boston during the night. The next forenoon it is delivered to the distributers, who take it to their barns or sheds, and there put it in the small service cans for delivery the next morning. It is then forty-eight hours old, sixty before the last meal of that day, and seventy-two hours before a fresh supply is obtained. Except with the greatest care milk will not keep in good condition this length of time, and I am informed by men engaged in the business that it is common to use chemicals for the purpose of preserving it. The advantages of holding it this length of time accrue wholly to the milkman, for it gives time for "topping," so called, which means the rising of cream, rendering its easy separation from the milk possible, and how often this condition of the milk is taken advantage of we are informed by the analyses of the State Board. It had become a "recognized industry" among the milkmen. The milk should be delivered to the consumer on the day of its arrival in Boston.

As a consumer in Boston my experience has not been less exasperating. During the first few years of my practice I endeavored to employ cow's milk as a substitute for mother's milk, but always with indifferent success or failure, which necessitated its final abandonment. Subsequently the paper of Dr. Lynde, read before the State Society, prompted me to try its use once more, and this time on my infant daughter. It soon provoked a diarrhœa, and after floundering about with the trial of a number of artificially prepared foods, condenced milk agreed with her, and this was used until going into the country, where I obtained a supply of pure cow's milk, upon which she continued to thrive. Returning to Boston I engaged milk of a friend (?), who said he would give me pure milk, but the child soon showed the effects of the change in the quantity of water eliminated. It was impossible to keep her otherwise than in a constant state of irrigation, but not until a diarrhœa ensued, followed by an intestinal catarrh, was the milk abandoned, and then only to be tried several times during the winter, again, each time provoking disturbance of the digestive organs. Setting the milk revealed the fact that it was regularly and systematically robbed of the cream. The following summer my child took cow's milk in the country, and did well. The next fall I made another change, after a long conversation with the new milkman, the substance of which was that I wanted "straight milk," as the life of my infant depended upon it. This he engaged to furnish, but, if possible, it was poorer than any I had ever before had. Although of the color of Jersey milk it had scarcely a trace of cream, and I went to the office of the city milk inspector to see what I could do about it. I was there informed that much of the complaint of adulterated milk was groundless, but if I wished to prosecute I should have the assistance of his office, but that "the department labored under great embarrassments for the want of a horse." I did not see fit to involve myself in litigation, and wrote to the milkman never to show himself on my premises again except to obtain a settlement of accounts, but up to this day he has never sent a bill. I then engaged milk which, I am happy to say, is of satisfactory quality, and my baby is doing exceedingly well with its use.

I trust and hope the influence of this Society will be exerted in support of the State Board in prosecuting these ungodly men, who by their wickedness compromise the health and lives of our little ones, an expression you will not think too severe when you remember that of the samples of milk analyzed by the Board in Boston ninety per cent. were found to be adulterated.

In regard to putting the milk in glass jars, I am informed by Mr. Burnett that after a trial of one year he found it impracticable. The breakage amounted to a loss of $150 per month in a supply of 400 quarts a day. He now uses large steel cans holding 60 gallons, and is enabled by their use to deliver the milk to consumers but twenty-four hours old, and this is certainly an advantge, and would be a great improvement in the system of distribution of railroad milk.

A gentleman doing business in the way of supplying milk to the consumers in Boston, and a member of the Milk Producers' Association, who was present at the meeting by invitation of the Secretary, spoke as follows:

This question naturally divides itself into three distinct parts—the production, the transportation, and the city delivery. Let us first look at the subject from the standpoint of the producer. He may be a wealthy man, perhaps living in or doing business in the city. He owns a farm for the fun of it, and because he must have a way of providing a summer residence for his family. He buys first-class stock, hires men to do the work, makes a large quantity of milk, which is very likely not to be of a superior quality, for the reason that all means possible are taken to produce a large flow of milk, and from the lack of personal supervision of the men who do the work. This is the class of men who are agitating all kinds of innovations, putting fancy names on their farms, and a team in Boston to sell their supply, which they add to, if necessary, by purchases from neighboring farmers. It is possible for them to find ways of disposing of it to personal friends in the city, and to others who are led by judicious advertising or the desire to see a new thing succeed. That these methods are not business-like is proved by the fact that there is hardly one genuine success in the large num-

ber who have at various times attempted it; and no opposition is feared so little by the trade as that from a farmer who undertakes to sell his own supply.

Next, we find a large class of farmers who are not rich men, who are farmers because they must be; they may own their farms and stock clear, and may have business talent enough to read the papers, buy their grain at the right time, and dispose of their products to the best advantage. Milk being by far the most desirable of these products, they naturally make all other interests subservient to it. Such men have from eight to twenty cans per day, give their personal attention to it, take pride in their reputation, and are a reliable source of supply. As such they are in great demand, not only among the contractors, but the milkmen themselves, who maintain a jealous watch lest some one more favored by the contractor shall get what they esteem to be their best dairies.

A very general impression has gained ground from misrepresentation and ignorance that the farmer is the victim of an immense monopoly from which he has no escape. Nothing can be further from the truth. Imagine one man, as described, with 8 or 20 cans of 8½ quarts each to sell. He can hardly be so located within 30 miles of Boston that he cannot choose to which of two or three contractors he will sell his milk, to say nothing of butter makers and creameries. If he is so near the car that he can deliver it himself so much the better for him; if he is not, a team belonging to some contractor will either pass his house, if on the main road, or if not he can carry his milk out to the corner of the main road, where it will be taken up as the collector passes. He receives a certain price for his milk delivered at the car, and the rates vary from one to two, or in some cases two and a half, cents per can for the carting, the collector being able to do the work for the minimum rate because he goes loaded, few farmers preferring to hitch up and drive 3 or 4 miles for 16 to 40 cents. If, for any reason, one farmer desires to be independent of the contractor, he can, as many do, make butter, or if he does not wish to do that, he can come to Boston and find a milkman who wishes also to be independent, and they having traded, notify the contractor, who is compelled by law to freight the milk, the price being regulated by the Railroad Commissioners.

A third class of farmers are those who keep only one or two cows, and make a small quantity of milk, who never become an important factor in the problem. All these various producers raise fruits, vegetables, grain, and hay, and expect, if they sell them, to be subject to the law of supply and demand, and to be able to receive only so much as is the ruling price on the day the sale is made; but when we look at the milk question we find a very different state of affairs. Our farmers appoint a meeting of a committee from their number who consult on the price to be established for six months from April 1 and October 1, or from October 1 to April 1, as the case may be. The stipulations are that the contractor shall take all the milk produced for six months at a price which he is expected to name in advance, and pay for the same by the 15th or 20th of the month succeeding the delivery. He using his best jndgment establishes such a price, and agrees that it shall not be changed except with the consent of the above named committee. When all the facts are considered it is not to be wondered at that mistakes are sometimes made. Has he a remedy? Let us see. The summer of 1882 was very hot and dry in August and the first of September. The price was arranged on a basis of 43 cents per can at the cars in Boston. From September 20 to October 20 it rained a little every day almost, the fall feed was a marvel, the cows gave more milk than in June, and seventy per cent. of the milk that came to Boston was enough to supply the entire demand. The farmees added all the new-milk cows to their herds that could be bought, sold all their calves, and literally flooded the market. January 1, after three months of ruinous business, the price was lowered three cents per can, trade was stimulated somewhat, and the supply was not in such a tremendous excess of the demand; but the six months' business was a disastrous one, owing to the mistake. On the other hand, if butter had been high and grain high, and the fall as dry as the fall of 1883, the farmers would have felt perfectly justified in selling their cows if they wished, or keeping the calves to use the milk, or making butter, and the last thing in the world that would have troubled them would have been whether the people in Boston were supplied with milk or not. The short-sighted policy of the farmers in such respects, more than anything else, prevents the relations existing between them and their customers being as amicable as might be desired.

How to get cans enough to take all the milk he chooses to produce is the one great trouble every farmer has. The contractor tries to have every milkman furnish cans to take the milk from certain dairies, but has those of his own to send to supply any deficiency. These cans go up on the car dirty, and are left by the collector free of charge; are all of a size, eight and one half quarts wine measure. The farmer, having washed them, strains his milk into them, and puts them into the place he has arranged for cooling the milk. In many cases this is a covered tub or trough near the well, or connected with running water from a spring. The contractor or milkman to whom he sells his milk frequently suggests and often helps to pay for this arrangement, which is of vital importance, as upon the care of the milk for twenty minutes after being drawn from the cow depends the value of it as an article of commerce.

How long milk may be preserved by good care and still be as good as fresh milk is a question upon which I would prefer the opinion of scientific men to my own. Certainly experience teaches that it is more desirable to most consumers (if they do not know of the fact) after twenty-four or even forty-eight hours. There is no trouble whatever in keeping it sweet three or four days, if a temperature of 50° F. is steadily maintained, but my experience also teaches that the baker must have as fresh milk as can be obtained if he wants to make a custard of it and get good results. A better cheese can be

made from new milk than it is possible to make from that over twenty-four hours old.

The farmers, at their meetings and through the press, are frequently influenced by impractical men, who do not make milk, but who want to seem interested in their welfare, to do away with all middle men, and come directly in contact with the consumer. As before intimated, this has been done in isolated cases, but not yet successfully. Surely if practical men, of years of experience in the business, actuated by every feeling of rivalry and ambition, can see no way to improve the present plan, it is an indication that none can be found.

Let us now look at the second branch of our subject, transportation. Here enters upon the scene the much-berated milk contractor. This system has been the growth of years of experience, and many men have made financial shipwreck in the attempt to fill the position. With the plans and failures of the past we need have nothing to do, suffice it to say the only chance for any profit as it is now arranged is by saving a little here and a little there, by doing a large amount of work for a very small commission, and utilizing the surplus milk so as to make the smallest possible loss. The prices paid in the country as well as those obtained in the city are published, and the commission, about eight cents per can, or one cent per quart, is known to the farmer as well as to the milkman. The Railroad Commissioners, after thoroughly going over the matter, have allowed the contractors to charge six cents per can freight for milk brought thirty miles, which is a very close approximation to the actual cost. Out of this he has to pay freight to the railroad, buy ice to ice the milk in summer, and coal to heat the cars in winter, hire men to load the cars and deliver the milk upon its arrival in Boston, and guarantee it from accident or loss. If he buys and sells the milk he has two cents per can over the six for freight to protect him from loss in the transaction of his business and the surplus milk. As intimated before, he makes a one-sided contract by which he agrees with the farmer to take a large quantity if it is for the farmer's interest to make it, and to get along with a small quantity if the farmer thinks it is not in his interest to make it. On the other hand, he contracts with the milkman to give him just what he wants whether the farmer make it or not. In order to be safe he perforce buys all the milk on a large territory, preferring to manufacture a large surplus into butter to saying to his customers: "I cannot supply you, and you must look elsewhere."

The leading principle with too many of the men engaged in the sale of milk in the city is to get trade, by any means possible, and build up a route to sell out. Such dealers have no pride in learning thoroughly the proper way to carry on the business; they do not care much what they sell, or whether or not they make a legitimate profit, if in the end they can sell out and come out even or a little ahead. The class of men who have the better portion of the trade, who have had experience in business, and money with which to carry it on, who want to sell a good article and make a fair profit, and who, if there were no ruinous competition, would not, from principle, take advantage of their customers, but would give every attention to their wants, only asking a fair return, are constantly harassed and annoyed, and, as they term it, robbed by these so-called "pick ups."

Another trouble is found in the competition from stores. At the present price, 40 cents per can at the car, a milkman pays 4.71 cents per quart for his milk. It is conceded that a milk-wagon cannot be run for less than 2 cents per quart by all having any knowledge at all of the business, and many close observers say 2½. If we take the lowest figure, the milk costs 6.71 cents at the consumer's door, or 7.21 cents if we take the higher. It is easy to imagine the feelings with which he would regard a card in a window, "Pure milk, 4 cents per quart," when he may have one or more customers in the same block from whom he must get 7, and, if possible, 8 cents per quart, or not pay his bills.

That it would be an advantage to the business if the Board of Health would drive all store-keepers out of the business who are not willing to sell pure milk and sustain the price, is clear. Whether the poor people who buy would be benefited by the advance in quality more than they would feel the advance in price, is not so clear. At all events, it is a fact beyond dispute that any man may, by a little inquiry, find out the character of the man from whom he proposes to buy, and need fear being cheated no more than he would in buying any other class of goods.

In reply to a question, the same gentleman stated that the effect of feeding cows on ensilage was to produce a peculiar sweetish taste in the milk, which is not at all agreeable, and is also contained in the butter made from such milk.

In regard to the statement that a certain milk-producer is putting up milk at his farm in glass jars for delivery in Boston, the facts are as follows: I know the gentleman, and know the source of his milk. It is transported to Boston by rail, and always comes in ordinary tin milk cans. If he delivers it in Boston in glass jars, it is put into jars after it reaches the city. It comes to Boston like all the rest of the milk.

Dr. J. Ayer asked the speaker, "Ought the citizens of Boston to receive milk as good as farmers produce it, thirty miles in the country; or does the carriage, by cars or otherwise, injure its properties?" to which the reply was given that there is no reason why the milk when delivered at the door of the consumer should not be in every way equally as good as when it left the farm on which it was produced. The main source from which damage might be apprehended would be from too early collection, before the temperature of the milk had been sufficiently lowered by cooling in water, or too high a temperature in transit in summer, or freezing in winter. These accidents are obviated by the cans being surrounded by ice as soon as they are placed in the car, or otherwise kept at the right temperature, which should, if possible, be maintained at 50° F.

(*Continued next week.*)

STATE MEDICINE.

The sixth annual meeting of the Sanitary Council of the Mississippi valley was held at Memphis, March 21, 1884.

The only paper or document of importance presented to the meeting was the annual report of the Secretary, Dr. J. H. Rauch, of Springfield, Ill. We give it as follows:

At the last meeting of the Sanitary Council of the Mississippi Valley, at Jackson, Miss., April 3 and 4, 1883, the following resolutions were adopted:

Resolved, That in case the National Board of Health is deprived of making inspections of persons and freight when demanded by the local boards of health, certificates issued under the supervision of a representative or representatives of the Sanitary Council of the Mississippi Valley, shall be accepted as valid by the boards of health of the Mississippi Valley, provided that said inspections be carried on under the rules and regulations heretofore prescribed by the National Board of Health.

Resolved, That the Sanitary Council recommends that the States of the valley make voluntary contributions to be expended under the direction of the Executive Committee of the Council, to continue river and rail inspections, in the event that no funds are placed in the hands of the National Board of Health for that purpose.

Having received notice from the Secretary of the National Board of Health that that body would be unable to continue inspections after June 30, a meeting of the Executive Committee was held at Memphis, on the 21st of June, at which the following proceedings were had:

At a meeting of the Executive Committee of the Sanitary Council of the Mississippi Valley, held at Memphis on the 21st day of June, 1883, the following members were in attendance; Dr. Wirt Johnson, of Mississippi, President; David P. Hadden, of Memphis, Vice-President; Dr. John H. Rauch, of Illinois, Secretary; Dr. G. B. Thornton, President of the Memphis Board of Health and member of the Tennessee State Board, was also present by invitation. After thoroughly canvassing the situation, which up to this date was considered altogether encouraging, the following preamble and resolutions were adopted:

WHEREAS, The inspection service now conducted by the National Board of Health in the Mississippi Valley will cease on the 30th day of June, on account of want of funds for its further maintenance; and, whereas, the commercial welfare no less thau the health interest of the valley demands that these precautions be continued during the summer months, therefore, be it

Resolved, That the supervision of this service from and after June 30 be assumed by the Sanitary Concil of the Mississippi Valley, in accordance with the action of the Council had at its fifth annual meeting, in the city of Jackson, Miss., April 3 and 4, 1883.

Resolved, That the inspection station now maintained by the National Board of Health below Memphis be continued at the expense of the taxing-district government of Memphis.

Resolved, That the Mississippi State Board of Health should establish and maintain an inspection station on the Mississippi river at some point between Vicksburg and the Louisiana State line.

Resolved, That the present corps of inspectors of the National Board of health on duty at the Mississippi river quarantine station below New Orleans and on the river and railroads at New Orleans be continued under the direction of the Executive Committee from and after June 30.

Resolved, That the rules and regulations of the National Board of Health, for the conduct of this inspection service, be, and the same are hereby adopted for its further continuance under the direction of the Sanitary Council.

Resolved, That the supervision of this service, on behalf of the Executive Committee, be assigned to the Secretary of the Council, Dr. John H. Rauch, Springfield, Ill., to whom all reports of inspectors and communications pertaining to the service should be addressed.

It was further agreed that on and after July 1, only the certificates given by the inspectors of the Sanitary Council of the Mississippi Valley would be recognized by the inspection stations along the river, and by the health authorities of the towns and cities in those States which are members of the council.

The meeting adjourned subject to the call of the Secretary, who ot once proceeded to New Orleans for the purpose of personally arranging the details of the service at that important point.

On July 1, 1883, in pursuance of the action above recited, the Sanitary Council of the Mississippi Valley assumed supervision of the river inspection service, which was thenceforth continued uninterruptedly under such supervision up to September 15, when, all danger of yellow fever infection having passed, it was discontinued for the season.

During this period an inspector was maintained at the Mississippi river quarantine station below New Orleans, and two rail and two river inspectors at the port of New Orleans. In addition to these Mississippi maintained a station at Fort Adams, and Memphis, one on President's Island. In the operation of the service the rules and regulations of the National Board of Health were continued, no changes being made either in the *personnel* of the service or in its policy, by the Council, after assuming supervision. The inspector at the quarantine station below New Orleans was relieved from duty on July 31, owing to the action of Gov. McEnery, as hereinafter detailed.

At the request of the Executive Committee the expenses of the maintenance of the service, under the supervision oft he Council, were defrayed directly by those interested, so that the Council was relieved of the responsibility and labor attaching to the disbursement of money. Mississippi, through its State Board of Health, and the taxing district of Shelby County, through the Memphis Board of Health, paid the expenses of the stations at Fort Adams and President's Island respectively. The Illinois Central and Louisville and Nashville railroads paid their own inspectors

in New Orleans; while the river inspectors in New Orleans were paid by the commercial and steamboat interests through the New Orleans Auxiliary Sanitary Association.

No officer or member of the Sanitary Council received any compensation for his services in connection with this work.

From May 15, the beginning of the quarantine season, up to the close of July, there had arrived at the Mississippi river quarantine station, below New Orleans, seventy-three vessels from foreign ports. Of these, forty-seven were inspected up to June 30, under the supervision of the National Board of Health, and during July the remaining twenty-six were inspected under the supervision of the Sanitary Council.

Of these latter, eleven were from ports infected by yellow fever at the date of departure, and three of them—namely, the Berna, July 8, the Merchant, July 16, and the Buteshire, July 17, arrived with cases of yellow fever on board. Among the remaining vessels one was found to have had yellow fever on board in Havana last season, and in seven other cases it was probable that they had been infected at some previous time.

The sanitary condition of the vessel, cargo, crew, and passengers in twelve cases was good, and in the remaining cases, with the exception of the Berna, Merchant, and Buteshire, which were infected—the report of the inspector was qualified. In all cases the vessels were subjected by the quarantine authorities to a thorough general cleansing, purification of bilge, hold, etc., and disinfection with carbolic acid and copperas, and the cargoes were fumigated with sulphurous acid gas. Coffee ships from Rio de Janeiro were either not allowed to proceed up to New Orleans at all, or only after removal of cargo and thorough fumigation of the same.

The arrival of the Merchant July 16, and of the Buteshire the following day, both from Vera Cruz, with yellow fever cases, led the Governor of Lousiana, July 20, to recommend to the Louisiana State Board of Health that no infected vessel be permitted to enter the Mississippi River, and that all infected vessels then at the quarantine station be removed out of the river at once, assigning the reason that their presence at that point had practically rendered the station an infected port in dangerous proximity to New Orleans, and threatened a stupendous calamity to the Mississippi Valley.

At its meeting July 23, the board discussed this communication, and finally adopted a resolution requesting the Governor to issue a proclamation enforcing his recommendations, and declaring non-intercourse between Louisiana and Vera Cruz, Rio de Janeiro, Havana, and other infected ports, which proclamation was made the following day, July 24. The infected vessels were ordered to be removed from the river, and for the first time in a number of years the lower Mississippi was freed from the menace arising from the admission of yellow fever ships to the river.

Immediately upon receipt of information of this action, the request previously preferred to Governor McEnery, to permit the Sanitary Council Inspector to remain at the quarantine station, was withdrawn by telegram, and the inspector was relieved from duty July 31.

In this connection it is proper to remark, that while both the National Board of Health and the Sanitary Council have been advocating for the last four years the exclusion of infected vessels from the Mississippi during the dangerous season, and the use of Ship Island as a refuge station for such vessels, the necessity for absolute non-intercourse has not been recognized. The plan proposed by these two bodies contemplated the maintenance of an inspection station at or near Port Eads. All vessels entering the river would here be subjected to a rigid examination. Those found to be infected would be compelled to go to the Ship Island refuge station; healthy vessels from infected ports would be subjected to such treatment as would render it safe to allow them access to New Orleans; while all others, if found in a good sanitary condition, would be passed without detention. In this way it was believed the public health could be properly protected without inflicting any serious injury to the commercial interests of New Orleans.

On August 13, immediately after my return to Springfield from New Orleans, I recommended that, "unless yellow fever should appear in that city by the 20th instant, inspections should cease on the 31st." Doubts as to the character of the Jackson, Miss., sickness, and the conditions at Pensacola and vicinity, prevented the adoption of this suggestion; but on the 15th of September, New Orleans and the valley remaining free from any suspicious illness, the service was definitely suspended for the season.

From May 15 to September 15, during which period the service was maintained, there were inspected 73 ocean vessels at the Mississippi river quarantine station; 277 steamboats and other craft at the port of New Orleans; 439 steamboats and other craft at the stations of Fort Adams, Miss., and President's Island, Tenn., and 1,421 freight trains on the Illinois Central and Louisville and Nashville railroads at New Orleans. The aggregate inspections comprise 2,210 ocean vessels, river craft, and freight trains, with a capacity of 2,534,870 tons, and carying 39,947 officers, crew and passengers.

Not for many years has New Orleans been so free from alarm or cause of alarm, during the corresponding months, as during the sixty days ending August 31 last, and there was practically no trouble with regard to the yellow fever during the summer in any portion of the region in which the Sanitary Council is directly interested.

In conclusion, it seems proper to add that the utility of the Council has been again demonstrated—this time in the direction of practical administration over a large area, embracing many and diverse interests, and coördinating and utilizing agencies and authorities which, otherwise, would have been limited in their usefulness to their own individual fields. The methods of inspection and sanitary supervision were uniform along thousands of miles of rail and river; and all conflict of authority, all clashing of boards, and all expense and irritation of ill-advised and un-

necessary quarantine, and hence all embarrassment and interruption of travel and traffic were successfully and happily avoided.

There is no question in my mind but that the form of the organization should be maintained in readiness for instant action whenever an emergency arises similar to that with which we were confronted during the summer of 1883.

The minutes of the last annual meeting, that at Jackson, Miss., April 3 and 4, 1883, have been published in full, and copies supplied to the delegates; so that, unless called for, there is no necessity for reading these at this time.

After the reading of the Secretary's report a series of resolutions were reported by the committee on that subject, which elicited much discussion, and were finally laid upon the table.

Dr. Hyer then offered the two following resolutions, which were adopted:

Resolved, That the Sanitary Council of the Mississippi Valley, in annual session assembled, memorialize Congress to adopt the bill introduced into the House of Representatives Jan. 8, 1884, by the Hon. Casey Young, providing for the prevention and introduction of infectious diseases into the United States, and for obtaining information of the sanitary condition of foreign ports and places in the United States, and for procuring information relating to climatic and other conditions affecting the public health.

Resolved, That the thanks of the Council be, and the same are, hereby tendered to Dr. Rauch, the Secretary of the Council, for his arduous and faithful labors under the instructions of this Council in 1883, and the Executive Committee are hereby instructed, if necessary, to adopt the same line of action in regard to the prevention of the introduction of yellow fever or other infectious diseases into the Mississippi Valley during the year 1884.

After the adoption of these resolutions and the transaction of some miscellaneous business, the Sanitary Council adjourned. The officers elected for the ensuing year were mentioned in the preceding number of the JOURNAL.

It was ascertained that the Executive Committee would decide to call the next meeting of the Council at New Orleans, some time before the close of the Cotton Exposition.

During the evening a number of the delegates were entertained by Drs. Thornton, Saunders and Marshfield, in being honored at the "Tennessee Club," or in partaking of hospitalities at their residences.

Most of the delegation from Illinois prolonged their visit another day in the city "built on the Chickasaw bluff," and then proceeded to New Orleans.

The system of "automatic sewage" was investigated and extolled. It will be one of the means, no doubt, of preventing yellow fever from ever getting much headway in their city in the future.

Thirty delegates were present at the meeting, representing eight States.

FOREIGN CORRESPONDENCE.

PARIS LETTER.

PARIS, MARCH 14, 1884.

A short time ago, Professor Germain Sèe read a very interesting paper at the Academy of Medicine on the diagnosis of pulmonary phthisis, in its various forms, which he has since published separately. It may be questioned as to whether there exist or not any cases of consumption without bacilli, or even without the classical tubercles; but the class of phthises without bacilli are, according to Professor Sée the only true phthises. The learned professor, true to his doctrine of the pathological unity of phthisis, declares that there is but one phthisis—phthisis tuberculosi, of which, it is true, the forms are varied. These are: 1. The so-called miliary granulation which is found in the lungs of phthisical patients, and often generalized in all the organs and in all the tissues. 2. The tubercle, properly so-called, grey or yellow, which follows the granulation. 3, The substance infiltrated with grey or yellow matter, which results from the fusion of isolated tubercles. 4. In all the cases of tubercles, whether distinct or confluent, more or less advanced, the caseous condition, which constitutes the first phasis of destruction of the morbid product.

This doctrine of the pathological unity of phthisis has been confirmed by experiment, as all the products inoculated reproduce the same phthisis, variable in its forms, but identical in its basis, always and indefinitely inoculable. Between specificity and virulence, there is but one step: this has been passed. The transmissibility is real; it was only necessary to search for the agent of contagion, and as the smallest quantity of morbid matter inoculated, produces the malady, it is not with an ordinary poison we have to deal, but most probably with a microbe, which Professor Koch, of Berlin, demonstrated in April, 1882. Although other experimenters believed they had discovered the microbe of tuberculosis, Koch was the first who, by a special process of coloring, succeeded in discovering the true microbe under the form of rods, which, by their chemical and morphological properties, differ totally from all the other known forms of parasites. He gave three series of decisive demonstrations: 1. The constant presence of bacilli in all the tubercles and liquids secreted; in miliary granulation, raw tubercle, parietes of cavities and their contents, which keep up the sputa, scrofulous products, lupus (Cornil) and all the products derived from the evolution of spontaneous tuberculosis in animals, have furnished bacilli. 2. The speciality of the chemical and morphological characters of bacilli. 3. Specific characters, that is to say, the virulence of bacilli and their exclusive property of reproducing tuberculosis. Koch cultivated these bacilli in the serum of bullock's blood, by a particular process which was imitated by Baumgarten, who found that whenever he inoculated with the products experimented with, tuberculosis was always engen-

dered. On the other hand, the morbid products, minus bacilli, never engendered the disease.

From these premises Prof. Sée concludes that bacillary expectoration is the sign characteristic (*la signature*) of tuberculosis; the sputa without bacilli belong to other maladies, whence the conclusion that the sputa are contagious, and that it is the pulmonary exhalation which propagates the disease. Of 2,509 cases of phthisis collected from reports from different parts of the globe, bacilli were found in the sputa of 2,417 cases, and in the greater part of the negative cases, it is acknowledged that the experiments were not sufficiently repeated to permit one to affirm the absence of the parasite. On the other hand, whenever the experiments gave negative results the autopsy showed the absence of tubercles.

From these considerations Prof. Sée has thought proper to admit three other forms of phthisis, which he terms pseudo-phthises, which are difficult or impossible to diagnose from true phthisis without examining the sputa as practised by Koch and others after him. These are: 1. Latent phthises, which commence insidiously and continue for a long time without manifesting any physical signs, by a short hacking cough, with or without emaciation. The examination of the products of expectoration often permits one, from the commencement of the malady, to recognize the origin of this cough. In cases of spitting of blood also the origin of which it is impossible to discover by auscultation, the examination of the products of expectoration would often enable one to pronounce an absolute opinion from the first attacks, as to the nature of the hæmorrhage. In this same group will be found hyperacute phthisis, termed miliary, the diagnosis of which is generally impracticable unless the expectoration is examined. In the latter case the presence or absence of bacilli would decide the question. 2. Abnormal phthises, or as Professor Sée terms them, "phthisies larvees" are those in which the phthisis sets in suddenly and assumes the appearance of the acute affections of the respiratory organs, such for instance, acute pneumonia, and is treated as such. It may also be mistaken for acute bronchitis, accidental laryngitis, or simple plenrisy. The error may be said to be inevitable without the microscopic examination of the products of expectoration. 2. A third category comprises broncho-pulmonary affections, which in their turn have also so simulated phthisis, even as regards the auscultatory signs of the latter, as to leave the physician and patient in the greatest uncertainty. Among these pseudo-phthises may be included pulmonary syphilis which differs from tuberculosis by its incurability. M. Sée referred also to bronchial dilatation in which, in spite of appearances, the examination of the sputa enabled the physician to diagnose absence of cavities. In fine, the same remarks may be applied to all pulmonary affections, in which the examination of the sputa can alone remove the difficulty of diagnosis: the absence duly established of parasites in the sputa, would constitute with certainty the absence of tuberculosis. Inversely, the presence of bacilli would enable the physician to recognize the existence of tuberculosis even where the latter had never been suspected.

The consequences of this discovery must lead to another system of therapeusis in the treatment of this dire affection, the object of which must be to attack the parasite at the commencement of its evolution, but as yet nothing has succeeded. A. B.

DOMESTIC CORRESPONDENCE.

LEGAL REGULATION OF THE PRACTICE OF MEDICINE.

EDITOR JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

In 1849, at the Boston meeting of the American Medical Association, that body had a report from an able committee on the subject, among other things, of regulating the practice of medicine by law, the conclusion reached being that it was not at that time expedient to seek the aid of State legislatures in that direction, and this has probably been the dominant sentiment of that organization since, as no further agitation of the matter has occurred. But many things have happened in the thirty-five years since that first Boston meeting of the Association, and it is quite probable that the present members of that body may hold views differing from those of the members of that day.

At least, for years thoughtful physicians have been filled with regret to observe so many persons engaged in the practice of medicine, who possessed no adequate professional education for the service. These incompetents consisted of many who had been to medical colleges of some kind, perhaps of more who had never been in a college, medical or other, and of some who had little or no training in any educational institution—natural doctors, so-called.

To devise a remedy for this evil of magnitude has taxed the serious thought of the wisest among regular physicians for more than a generation. The initial step in the foundation of the American Medical Association was taken in 1845 by the New York State Medical Society in these words: "Whereas, it is believed that a national convention would be conducive to the elevation of the standard of medical education in the United States," and the national convocation of physicians has continually through all the years of its existence labored in the same field, and the labor has not been altogether without fruit; but while it has been giving attention to the education of those who were to become members of its own guild, simply cultivating its own ground, new territory has been opened, and other workers have claimed popular recognition and have received it. And while regular physicians may properly lament the existence of the delusion that gives professional standing to the disciples of exclusive dogmas in medicine, they cannot undertake, on behalf of the people, to produce a more competent corps of medical practitioners without a clear recognition of the fact that other schools of medicine than the regular are integers in the sum that

constitutes the whole number of medical persons who minister to the ailing with the consent and approbation of the public, so that though the regular fraternity could make perfect its own adherents so far as knowledge has advanced, there would still be a class, far from insignificant in numbers, that would be outside their jurisdiction and direct influence.

There must, therefore, be some ground selected for further operations, upon which all well-intentioned practitioners can stand and coöperate for a common end. Fortunately, such a platform is not difficult to find, and it consists in a demand that every aspirant for the privileges of a medical practitioner shall furnish satisfactory evidence that, in addition to a suitable general education, he is sufficiently learned in medical history, anatomy, histology, physiology, chemistry, pathology, pathological anatomy, ætiology, semialogy, mechanical surgery, parturient mechanism, hygiene, and medical jurisprudence. So far as it goes, this scheme for the improvement of the profession of the future is not likely to meet with opposition from the best elements, nor a majority, of the members of any school of practice which has enough of professional *elan* to establish and maintain a State organization of its adherents, and reliable testimony is not wanting that there is a rapidly increasing sentiment among reflecting laymen that the time has fully come when all medical practitioners must be educated persons.

That this scheme embraces no therapeutic doctrine will be distasteful to many excellent physicians, but it is believed that the sober second thought of all classes will recognize that there is little risk in trusting the medication of the ailing to the judgment of any one who is completely master of the departments of medical science recited above. And, moreover, it must be an apparent verity to the most obtuse that while regular physicians, eclectics, homœpaths, etc., have their present standing among the people, no one of the schools can reasonably hope to have its peculiar views of therapeutics recognized by an authority that has the power to cause their general adoption to the exclusion of others, while all can heartily say to the scheme of learning herein outlined, so far as it goes, amen.

To have this measure bear fruit it must be prescribed by the State, and have the machinery of law to enforce it. This could probably be obtained by the judicious management of the friends of the measure, because it rests upon general principles so patent that legislators could not torture it into a proposition for the benefit of any class of citizens other than the whole people themselves, nor accuse it of being inimical to any person whose plaints were entitled to respect. My several years' experience as chairman of a committee of the State Medical Society to procure legislation to regulate the practice of medicine, convinced me that any scheme of value for this purpose must have such intrinsic merit as to command the support of the non-medical members of the legislature, irrespective of the advocacy or opposition of the doctors who may be members of that body. In the legislatures I appealed to, about ten per cent. of the members were physicians of various kinds, and no proposition to regulate practice could obtain the active support of more than a fraction of these, and, as a rule, the lay members would claim that the doctors must be a unit for a bill of the kind to entitle it to their consideration, an impossible condition while it covered therapeutics. It is believed that the good in the plan now presented is so obvious that it will receive the approbation of the non-medical legislators on its merits, independently of the views of the doctors present.

So important is it that any good plan adopted to regulate the practice should be uniform in the several States, or if not identical in terms, at least equivalent in substance, that it would seem a proper act for the American Medical Association, at its May meeting in Washington, to formulate the practicable points that the occasion demands and the popular sentiment will warrant, into an orderly proposition, and give it the benefit of a recommendation that the legislature of each State in the Union be urged by the profession within the State, to clothe it with the force of a statutory enactment. It is to call the attention of the members of the Association to the desirableness of unanimity in this premise that this communication is submitted to them at this time.

Some States have already acted in this matter, other States are moving in this behalf—Dr. Gihon, in the JOURNAL of March 22, details what New York is striving for, and in Indiana, Dr. Rowland, as the chairman of a committee of the State Society, is making an active, intelligent canvass for the same purpose—and it is of importance that there be an authoritative model as a common guide, if we hope to approximate a common standard, and there is no organization but the American Medical Association that could legitimately and with propriety exercise the right or appear in the role, of a common adviser.

JAS. F. HIBBERD, M.D.

Richmond, Ind., March 29, 1884.

WASHINGTON LETTER.

MATTERS IN CONGRESS OF MEDICAL INTEREST.—March 3, Mr. Pettibone, of Tennessee, introduced a bill (H. R. 5603) into the House of Representatives which was referred to the Select Committee on the Public Health, and which was in effect: That the Surgeon Generals of the U. S. A., the U. S. Navy, and Supervising Surgeon-General of the U. S. Marine Hospital Service, shall hereafter constitute the United States Board of Health, with the powers and authority now exercised by the National Board of Health. Sec. 2 requires the consular officers to report to the Secretary of State all matters affecting the public health coming under their notice. Sec. 3 orders sanitary investigations to be made at the Museum of Hygiene of the Navy Department, under the direction of the Surg.-Gen. U. S. Navy. Sec. 4 puts the quarantine service under the direction of the Supervising Surgeon General of the Marine Hospital Service. Sec. 5 orders an annual statement of transactions and expenditures of moneys to be made to the Secretary of the Treasury.

The Senate Bill to establish a University of Medicine in the District of Columbia, and referred to in this correspondence on page 193, is already bringing forth some curious fruit. A so-called graduate of the Allopathic and Physio-Medical, or Botanic schools of medicine, uses its text as an excuse for an apparent discussion of the bill and a real advertisement of himself—he would amend by adding the hydropathic and botanic schools, and accordingly issues his circular.

COLLEGE MATTERS.—On March 20, the Medical Department of Howard University held its annual Commencement, with a graduating class of 21, of whom 3 were women.

On March 20, the Medical Department of the Columbia University graduated a class of 14. It also conferred the honorary degree of M.D. on Robert Fletcher, M.R.C.S.

NECROLOGY.

WOLCOTT, ERASTUS B., M.D., of Milwaukee, was born October 18, 1804, in Benton, Yates county, New York. His parents were from Litchfield, Conn. He was a lineal descendant of Gov. Oliver Wolcott, one of the signers of the Declaration of Independence.

He commenced the study of medicine when about 18 years of age, under the direction of Dr. Joshua Lee, of New York, and received a degree of M.D. from the Medical College of Western New York in 1829. In 1835 he was appointed Assistant Surgeon in the army, and not long after was stationed at Mackinaw. He there married a daughter of Mr. Michael Dousman, and in 1838 resigned his commission and settled in Milwaukee, where he practiced his profession until the time of his death, January, 1880.

The doctor was a prominent member of the early Territorial and State Medical Societies, and a punctual attendant in days when sessions were held in the winter at Madison, and the state of the roads and public conveyances rendered attendance no easy task. He was one of the organizers of the Milwaukee County Medical Society, in 1846, and was present when it reassembled, in 1879, after many years of inaction. He was also one of the originators of the first local medical society of Milwaukee, and became a member of the American Medical Association in 1878. He was not only actively engaged in his profession, but he held many offices of trust and honor in the city and the State. He was made Surgeon General of the State Militia in 1842, and Major General of the First Division of Wisconsin Militia in 1846, a member of the Board of Regents of the State University in1850, and one of the first Board of Managers of the National Homes for Disabled Soldiers in 1866, which position he retained until his death. At the time he came to Milwaukee he bore a good reputation as a surgeon, which deservedly increased and became more widely spread as the years passed away. He was gifted with great natural qualifications for this work. He possessed keenness and quickness of perception, was a neat and dexterous operator, was prompt in action, fertile in expedient, untiring in care and attention, and always manifested that gentle consideration for the patient which is ever a prominent attribute of the successful surgeon. Until the time of his last illness he was ever ready to respond to any summons from the poor as readily as from the rich, and by night as cheerfully as by day. There are thousands yet living in Wisconsin, in whose hearts the mention of his name will always call up deep feelings of gratitude and affection.

J. K. BARTLETT, M.D., Milwaukee.

MISCELLANEOUS.

NEW BOOKS.

Escudié, A. Des hémiplégies dans le diabète sucré. 8vo 39 pp. Paris: Derenne.

Gariel, C. M., et V. Desplats. Eléments de physique médicale. 2e edition. 8vo. xii. 920 pp. avec 535 figs. Paris: Sary. 12f.

Leplichez. De la métrite chez les tuberculeuses. 8vo. 75 pp. Paris: Davy.

Nepveu, G. Présence de bactériens et du cercomonas intestinales dans la sérosité péritonéale de la hérnie étranglée et de l'occlusion intestinale. 8vo. 14 pp. Paris: Derenne.

Ohier, L. Le masque sclérodermique. 8vo. 88 pp. Paris: Pichon.

Riant, A. Hygiène scolaire. Influence de l'ecole sur la santé des enfants. 7e edition. 18mo. xlviii. 399 pp., avec 79 figs. Paris: Hachette et Cie. 3f 50c.

Nussbaum. Künstliche Harnwege. Zwei kleine Mittheilgungen. 8vo. 19 pp. München: Rieger.

Œller, J. N. Zur pathologischen Anatomie der bleilähmung. 8vo. 26 pp. München: Rieger.

Œrtel. Ueb. Ernährung m. Hühnereiern. 8vo. 21 pp. München: Rieger.

Pfeiffer, L. Regeln für die Wochenstube u. Kinderpflege. 2 Theil. 8vo. Weimar: Höhlan.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT UNITED STATES ARMY, FROM MARCH 22, 1884, TO MARCH 28, 1884.

Hammond, John F., Colonel and Surgeon, now in New York city on sick leave of absence, will, after the expiration of his sick leave, await orders in that city. (Par. 8, S. O. 70, March 26, 1884.)

Gibson, A. J, First Lieutenant and Assistant Surgeon, relieved from duty at Fort Hays, Kan., and ordered to Fort Wingate, N. M., for duty. (Par. 3, S. O. 58, Hdqrs. Dept. Mo., March 18, 1884.)

Edie, Guy L., First Lieutenant and Assistant Surgeon, assigned to duty at Fort McIntosh, Texas.

Robertson, Reuben L., First Lieutenant and Assistant Surgeon, assigned to duty at Fort Ringgold, Texas. (S. O. 33, Par. 3 and 4, Hdqrs. Dept. Texas, March 17, 1884.)

Gandy, Charles M., First Lieutenant and Assistant Surgeon, assigned to duty at Fort Brady, Mich., as post surgeon. (Par. 6, S. O. 56, Hdqrs. Dept. of the East, March 22, 1884.)

Crosby, Wm. D, First Lieutenant and Assistant Surgeon, relieved from duty at Fort Huachuca, A. T., and ordered to Fort McDowell, A. T., for duty. (Par. 1, S. O. 20, Hdqrs. Dept. of Arizona, March 15, 1884.)

OFFICERS OF

THE AMERICAN MEDICAL ASSOCIATION

AND OF ITS SEVERAL SECTIONS 1883-4.

PRESIDENT.

Dr. AUSTIN FLINT, SR., of New York.

FIRST VICE-PRESIDENT.

Dr. R. A. Kinloch, Charleston, S. C.

SECOND VICE-PRESIDENT.

Dr. T. B. Lester, Kansas City, Mo.

THIRD VICE-PRESIDENT.

Dr. A. L. Gihon, United States Navy.

FOURTH VICE-PRESIDENT.

Dr. S. C. Gordon, Portland, Maine.

PERMANENT SECRETARY.

Dr. Wm. B. Atkinson, 1400 Pine St., Philadelphia.

TREASURER.

Dr. R. J. Dunglison, Philadelphia.

LIBRARIAN.

Dr. C. H. A. Kleinschmidt, Washington, D. C.

Place of meeting, 1884, Washington, D. C.; Time of holding meeting, first Tuesday in May.

CHAIRMAN COMMITTEE OF ARRANGEMENTS.

Dr. A. Y. P. Garnett, Washington, D. C.

ASSISTANT SECRETARY.

Dr. D. W. Prentis, Washington, D. C.

BOARD OF TRUSTEES FOR JOURNALIZING THE TRANSACTIONS.

Drs. J. M. Toner, Washington, D. C., President;
M. Moore, Rochester, N. Y.; Leartus Conner, Detroit, Mich.;
J. H. Packard, Philadelphia, Secretary;
H. F. Campbell, Augusta, Ga.; A. Garcelon, Lewiston, Me.;
P. O. Hooper, Little Rock, Ark.;
L. S. McMurtry, Danville, Ky.; J. H. Hollister, Chicago, Ill.

OFFICERS OF THE SECTIONS:

"Practice of Medicine."

Chairman—Dr. John V. Shoemaker, Philadelphia, Pa.;
Secretary—Dr. W. C. Wile, Sandy Hook, Conn.

"Obstetrics and Diseases of Women."

Chairman—Dr. T. A. Reamy, Cincinnati, Ohio; Secretary—Dr. J. T. Jelks, Hot Springs, Ark.

"Surgery and Anatomy."

Chairman—Dr. C. T. Parkes, Chicago, Ill.; Secretary—Dr. A. O. Walker, Detroit, Mich.

"Ophthalmology, Otology and Laryngology."

Chairman—Dr. J. F. Chisolm, Baltimore, Md.;
Secretary—Dr. J. L. Thompson, Indianapolis, Ind.

"Diseases of Children."

Chairman—Dr. Wm. Lee, Baltimore, Md.; Secretary—Dr. W. R. Tipton, Las Vegas, N. M.

"Oral and Dental Surgery."

Chairman—Dr. T. W. Brophy, Chicago, Ill.; Secretary—John S. Marshall, Chicago, Ill.

"State Medicine."

Chairman—Dr. Deering J. Roberts, Nashville, Tenn.;
Secretary—C. W. Franzoni, Washington, D. C

Committee on "Necrology."

Chairman—Dr. J. M. Toner, Washington, D. C.